

## DOCUMENT RESUME

ED 382 890

CG 026 210

TITLE Fire Safety in Nursing Facilities: Participant's Coursebook.

INSTITUTION Walker (Bonnie) and Associates, Inc., Crofton, MD.

SPONS AGENCY National Inst. on Aging (DHHS/PHS), Bethesda, MD.

PUB DATE 93

CONTRACT 1-R43AG08903-01A2

NOTE 85p.; Produced for the National Fire Safety Certification System for the Elderly.

AVAILABLE FROM Bonnie Walker and Associates, Inc., 2135 Espey Court, Suite 16, Crofton, MD 21114 (\$10).

PUB TYPE Guides - General (050)

EDRS PRICE MF01/PC04 Plus Postage.

DESCRIPTORS Accident Prevention; Emergency Programs; \*Fire Protection; \*Fire Science Education; \*Nursing Homes; \*Older Adults; Safety; \*Safety Education

IDENTIFIERS Fire Drills; Fires; \*Fire Safety Education

## ABSTRACT

Fewer people die in nursing facility fires than in fires occurring in other places where older people live. Fire remains, however, a significant threat in nursing facilities. This book is centered around six "modules" that present a fire safety training program for managers and staff in nursing homes. These modules present the following information: (1) The Need for Fire Safety; (2) Fire Behavior; (3) Human Factors in Fire Safety; (4) Fire Emergency Planning; (5) Fire Hazards; and (6) Fire Safety Devices. Each module concludes with several multiple-choice questions which summarize content. The booklet concludes with a description of the goals and workings of the National Fire Safety Certification System. (JE)

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ED 382 890

# Fire Safety in Nursing Facilities Participant's Coursebook

*For the National Fire Safety  
Certification System  
for the Elderly*

CG026210

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# Fire Safety in Nursing Facilities

Participant's Coursebook

Bonnie L. Walker, Ph.D.

Bonnie Walker & Associates, Inc. • Crofton, Maryland 21114

## ► ACKNOWLEDGMENTS

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Coursebook design by Gene Hansen Creative Services, Inc.

Photographs by Susan Shemanski and Bonnie Walker.

This project was prepared pursuant to the National Institute on Aging, Grant Number 1 R43AG08903-01A2. The statements and conclusions herein are those of Bonnie Walker & Associates, Inc. and do not necessarily reflect the views or policies of the sponsoring agency.



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# The Need for Fire Safety

## Module One contains information on:

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- ▶ Fire Safety Success in Nursing Facilities
- ▶ Fires Do Happen
- ▶ Legal Liability
- ▶ Making a Difference

## Important Points

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- ▶ Fires resulting in multiple deaths do not happen often in nursing facilities.
- ▶ A nursing facility fire puts large numbers of people at risk.
- ▶ Fire deaths and injuries are almost always preventable.
- ▶ Nursing facilities can be legally liable for a resident's injuries.
- ▶ Fire safety training makes a difference.
- ▶ Your residents depend on you to protect them in a fire emergency.

MODULE ONE

## ► Fire Safety Success in Nursing Facilities

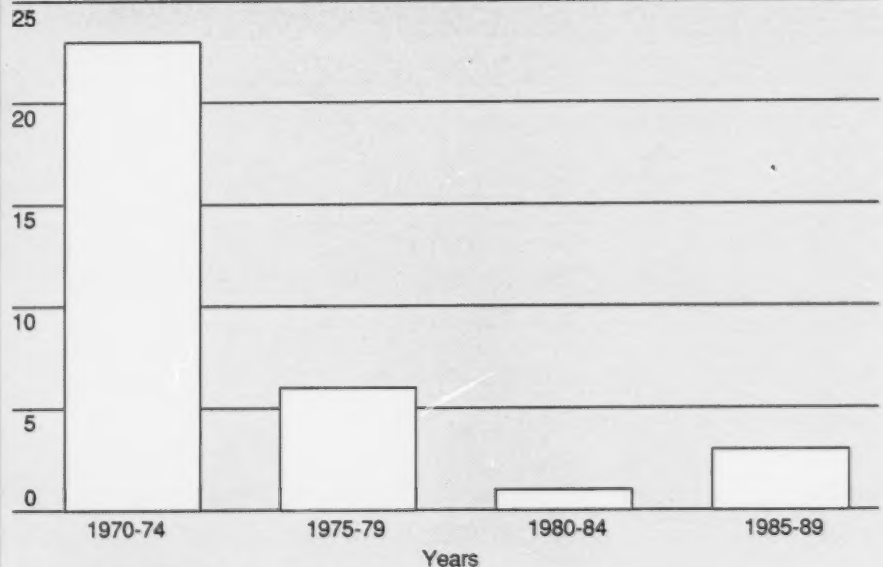
**Fewer people die in nursing facility fires than in fires occurring in other places where older people live.**

The number of multiple death fires in nursing facilities has decreased over the past 20 years even though the resident population continues to grow.

A multiple death fire is one in which three or more people are killed. During the 1970's, an average of 14.5 nursing facility residents died each year in multiple death fires. The yearly average from multiple death fires in the 1980's was reduced to less than two deaths per year.

### Multiple Death Fires in Nursing Facilities

Number of Multiple Fire Deaths for a 5 Year Period



Source: NFPA, Statistics Division

**The decrease in the number of multiple deaths in nursing facility fires is primarily due to the following:**

- The adoption and enforcement of the NFPA *Life Safety Code* through Medicare/Medicaid.
- Improved staff fire safety training and education.



## ► Fires Do Happen

Despite the fire safety success experience in U.S. nursing facilities, the threat of fire is always present.

### Therapy Can Present Fire Hazards

A 61 year old woman undergoing oxygen therapy received burns to her face. While trying to light a cigarette, she ignited the oxygen mask and tubing. A nursing attendant who witnessed the flash fire pulled a manual fire alarm and evacuated the woman from the room. The oxygen equipment reportedly did not have a label warning against smoking. Also, smoking materials were not removed before placing the woman on oxygen.

### Smoking Blamed for Fatal Fire

Careless smoking in a resident's room caused a fire that killed 13 elderly people and injured many others. One person who had previously been removed from the fire area returned to the nurses' station and succumbed to the smoke. The other 12 persons were found in their beds. All of the fire deaths were linked to the smoke.

#### Fire Experience in U.S. Nursing Homes, 1980 — 1988

| Year  | No. of Fires | Civilian Deaths | Civilian Injuries | Direct Property Damage<br>(in millions of \$) |
|-------|--------------|-----------------|-------------------|-----------------------------------------------|
| 1980  | 3,700        | 17              | 120               | 1.5                                           |
| 1981  | 3,600        | 13              | 264               | 1.8                                           |
| 1982  | 3,400        | 27              | 129               | 1.4                                           |
| 1983  | 3,200        | 5               | 173               | 1.6                                           |
| 1984  | 2,800        | 19              | 163               | 3.4                                           |
| 1985  | 3,200        | 24              | 170               | 4.2                                           |
| 1986  | 2,900        | 3               | 178               | 2.0                                           |
| 1987  | 3,100        | 2               | 93                | 1.7                                           |
| 1988  | 2,700        | 15              | 160               | 2.0                                           |
| Total | 28,800       | 124             | 1,450             | 19.6                                          |

Source: NFPA Journal

### Improper Disposal of Cigarette Causes Fire

A fire started on a cleaning cart that had been used earlier in the day by an employee who was cleaning resident rooms. A smoldering, discarded cigarette eventually ignited the trash bag's combustible contents. A sprinkler extinguished the fire and damage was limited to \$250.

### Sprinklers Stop Arson Fires

Four fires during a 48 hour period were set in a Utah nursing home by an employee of the facility. All of the fires were extinguished by the automatic sprinkler system and no injuries occurred. Damage to the building and its contents from the four fires was estimated at \$54,600.

A nursing facility fire puts large numbers of people who are particularly frail and susceptible to the effects of fire at risk.



## ► Legal Liability

*Liability is based on the common-law principle that a person or organization may be responsible for injury or property damage to another person.*

### What is liability?

Liability is the legally enforceable obligation for another person's safety or property.

### When can a person or organization be liable for damages?

When there is a duty to provide a certain standard of care, this standard is not achieved, and a person is injured or loses their property because of the actions or lack of actions taken.

### Can residents or their family successfully sue for damages?

Yes, if there is reason to believe a person or organization has failed to provide residents with their rights or a safe place to live and there is evidence of injury or property loss because of some actions or inactions.

### How can you reduce the potential for someone to collect damages?

#### Provide services that you are obligated to provide, such as:

- 24 hour supervision of residents.
- Staff trained to respond properly to emergency situations.
- Regular facility maintenance.

#### Establish appropriate fire safety policies for your facility, such as:

- Allow smoking ONLY in designated areas.
- Store flammable materials properly.
- Examine all electrical appliances for hazards.

#### Maintain the facility in a safe manner, such as:

- Protect hazardous areas.
- Select fire retardant furnishings and fire resistant interior finishes.
- Inspect all areas for fire and safety hazards.
- Install and maintain a sprinkler system throughout the facility.

#### Keep records of your actions, such as:

- Fire drills.
- Actions during an actual fire emergency.
- Inspection of the facility for hazards.
- Staff training activities.

*Make sure each resident's family is made aware of your fire safety efforts.*

## ► Making a Difference

### Why is fire safety training so important?

- Your residents depend on you to protect them from fire. In a fire emergency, they may not be able to save themselves.
- Fire growth accelerates with time, growing faster and faster. You need to know what to do in a fire emergency and you need to act quickly.
- You need to be able to identify and eliminate fire hazards.
- Awareness of fire hazards and how to react in a fire emergency will help you to save the lives of your residents.

### You can make a difference!

- Having a positive attitude about fire safety training is important. Take fire safety seriously!
- Remember, you can save lives!
- Remind fellow staff members of the need for fire safety.
- Notify supervisors of fire safety hazards.



*Staff need to work together to keep their facility fire-safe.*

*A fire can happen at any time.*

*Always be prepared for a fire emergency.*

*Put up signs to remind everyone of the need for fire safety.*

**► Module One Summary****Module Summary Questions**

1. *How often do multiple death fires occur in nursing facilities?*
  - a. Very often.
  - b. Not very often.
  - c. Routinely.
  - d. Never.
2. *While the resident population has continued to grow, how has the number of fires in nursing facilities changed?*
  - a. Doubled.
  - b. Stayed about the same.
  - c. Decreased.
  - d. Tripled.
3. *Which of the following is NOT an important reason for fire safety training?*
  - a. Residents depend on you to protect them from fire.
  - b. You need to act quickly in a fire emergency.
  - c. You need to be able to identify and eliminate fire hazards.
  - d. Most deaths in nursing facilities are caused by fire.
4. *Which statement best describes why staff must act quickly in a fire?*
  - a. Fire growth slows down with time, growing slower and slower.
  - b. Fire growth accelerates with time, growing faster and faster.
  - c. Fire grows at a constant rate.
  - d. A fire's growth rate fluctuates at an unpredictable rate.
5. *Why is having a positive attitude about fire safety training important?*
  - a. Because residents depend on you for their safety.
  - b. Because staff with positive attitudes are paid more for their work.
  - c. Because staff members need to be able to install smoke detectors.
  - d. Because fires usually occur on a daily basis.
6. *In which of the following situations is a facility most likely to be legally liable?*
  - a. When a resident is injured at the facility.
  - b. When a resident is afraid of being injured.
  - c. When a resident is injured and staff action or inaction contributes to the injury.
  - d. When a resident is unhappy with the facility staff.

# Fire Behavior

## Module Two contains information on:

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- ▶ The Tetrahedron of Fire
- ▶ Fuel
- ▶ Heat, Oxygen, and the Chemical Process
- ▶ Sources of Fuel, Heat, and Oxygen
- ▶ Smoke
- ▶ Flashover: When the Fire Takes Over

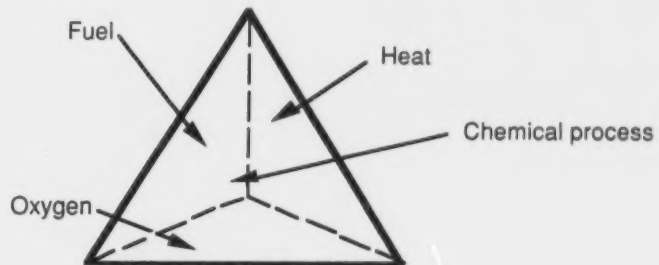
## Important Points

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- ▶ A fire has four components: fuel, heat, oxygen, and the chemical process.
- ▶ When one of the components is taken away, the fire will go out.
- ▶ Fire grows rapidly once it starts.
- ▶ The smoke from a fire is often more deadly than the flames and heat.
- ▶ Closed doors slow down the spread of smoke and SAVE lives.
- ▶ When flashover occurs, everything in the fire room ignites almost simultaneously.

## ► The Tetrahedron of Fire

### The Tetrahedron\* of Fire (The Four Components of Fire)



\*A tetrahedron is a four-sided figure.

*All four components must be present for a fire to exist.*

### What are the four components of a fire?

- Fuel
- Heat
- Oxygen
- Chemical process

### When does a fire occur?

- When fuel mixes with oxygen at a temperature high enough to keep the chemical process going.
- When a spark, open flame, or sufficient heat is present to ignite the fuel.

### When does a fire stop burning?

- When one of the components of fire (fuel, temperature, oxygen, chemical process) is missing.
- When an extinguishing material is used to remove one of the four components of fire. For example when water is used to remove the heat from a fire.



## ► Fuel

**Fuel is anything that will burn.**

- A fire must have fuel to burn. When all of the fuel is gone, the fire goes out.
- Three types of fuel are present in nursing facilities:



**Class A**  
Ordinary Combustibles

- Paper
- Wood
- Cloth
- Mattresses



**Class B**  
Flammable Liquids

- Gasoline
- Cooking oil
- Oil-based paint



**Class C**  
Electrical Equipment

- Appliances
- Outlets
- Fuse boxes

- Smaller pieces of fuel burn faster than bigger ones.  
**Example:** A small washcloth or rag will burn faster than a large towel.
- The arrangement of fuel affects how fast it burns. When the fuel can be heated easily, it will burn faster.

*When plastics burn and melt, they become flammable liquids. Breathing even small amounts of smoke from a fire involving plastics can be deadly.*

## ► Heat, Oxygen, and the Chemical Process

### Heat

- Fuel must be hot enough to burn.
- The temperature at which a fuel will ignite is called the **ignition temperature**.
- Heat never stays in one place. It continually moves from objects and areas of higher temperature to those of lower temperature.
- When heat is taken away, the fuel will stop burning.  
**Example:** Water puts out a fire because it cools the fuel.
- Heat can radiate throughout a room making it impossible to enter even before the flames have spread to the doorway.
- The temperature at which the vapors of a flammable liquid will catch on fire is called the **flash point**.

| Liquid     | Flash Point | Condition           |
|------------|-------------|---------------------|
| Gasoline   | -45°F       | Always Hazardous    |
| Turpentine | 95°F        | Sometimes Hazardous |
| Corn Oil   | 610°F       | Rarely Hazardous    |

### Oxygen

- A fire must have oxygen to burn.
- Air is the most common source of oxygen.
- A fire uses up oxygen as it burns. When most of the oxygen is used up, the fire goes out.  
**Example:** Placing the cover on a pan smothers the fire.
- During a fire, oxygen is replaced by carbon monoxide. High levels of carbon monoxide lead to suffocation.

### The Chemical Process

- The chemical process is a chemical reaction in which the heated molecules in the oxygen and the fuel combine uncontrollably—nothing in the environment is slowing down the reaction.
- When the chemical process is stopped, the fire goes out.  
**Example:** Some fire extinguishers work by stopping the chemical process.

Some objects such as metal doors radiate or conduct heat faster than other objects in a fire.

Oxygen cylinders are often used in nursing facilities for residents who have trouble breathing. These cylinders are hazardous because the concentrated oxygen can cause an explosion or can make a fire grow more quickly.

## ► Sources of Fuel, Heat, and Oxygen

**Directions:** Think about the sources of fuel, heat, and oxygen in your facility.  
List as many as you can in the spaces provided below.

### FUEL

Example: trash

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|--|--|
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### HEAT

Example: stove

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|  |  |

### OXYGEN

Example: air

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|--|--|
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|  |  |
|  |  |
|  |  |

Always be on the lookout for places where fuel, heat, and oxygen are all present. These are places where fires are most likely to start. Example: A heater pad left turned on in a bed.

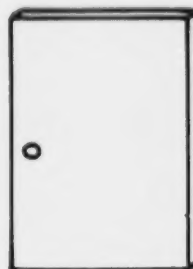
## ► Smoke

### Smoke can be deadly.

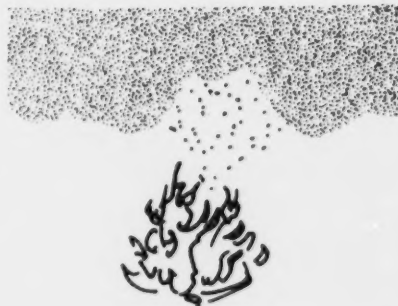
- Smoke is a mixture of hot vapors, poisonous gases, and unburned fuel particles that is produced when materials burn.

*Most people die in fires because they breathe in smoke and deadly gases.*

- Smoke and gases move through a building much faster and easier than flames and heat. A closed door slows down the spread of smoke and gases.



- Because heated smoke is lighter than the surrounding air, it rises to the highest level possible. Thus, rooms are filled with smoke starting from the ceiling downward. Smoke also travels through heating and air vents and other openings between floors.



- The smoke from a fire is often more deadly than the fire itself. In a smoke-filled room, the safest, breathable air is close to the floor. That's why it is important to stay low under the smoke while closing doors or evacuating.
- The weakened condition of the residents, especially those with respiratory problems, contributes to the risk of death from smoke inhalation in fire.

## ► Flashover: When the Fire Takes Over

*Fire growth does not occur at a constant rate. A fire may seem to be growing slowly at first, but fire development accelerates with time. It will grow faster and faster until flashover occurs, when survival is not possible.*

### What is flashover?

- Flashover occurs when hot gases build up in an area. First the ceiling and upper walls become heated. All the contents in the area become hot enough to ignite almost simultaneously. The room appears to burst into flames at once.
- During flashover, flames often spread across the ceiling and out the door. In an instant the entire room is engulfed in flames.
- At the same time, large amounts of smoke and heat are produced and are forced out an open doorway. Smoke and toxic gases will rapidly spread into the hall and through other open doors.

### What should staff remember?

- Flashover can occur in three minutes or less from the time a fire starts.
- The heat produced by the fire may make it difficult to approach the room and close the door even before flashover occurs.
- If the door to the fire room is not closed, the smoke and deadly gases will spread throughout the building and threaten other residents.
- Smoke is usually the killer.

### What can the staff do to stop resident exposure to the effects of flashover?

- Remove the residents from the fire room.
- Close the door to the fire room.
- Place the residents in a safe nearby location.
- Close all the other room doors to prevent smoke and toxic gases from spreading.

*The concept of how fast a fire develops in a fire developing area is not understood by most people.*



**► Module Two Summary****Module Summary Questions**

1. *The purpose of the video "Flashover: Point of No Return" was to:*
  - a. Explain how often fires start in nursing facilities.
  - b. Show what fire looks like.
  - c. Demonstrate how quickly fire can get out of control.
  - d. Show how easy it is for staff to put out the fire.
2. *Which is NOT a component of fire?*
  - a. Heat.
  - b. Water.
  - c. Fuel.
  - d. Oxygen.
3. *When does a fire stop burning?*
  - a. When there is too much oxygen.
  - b. When it becomes too hot.
  - c. When fuel, heat, oxygen, or the chemical process is missing.
  - d. Approximately one hour after it starts.
4. *Which fuel is an ordinary combustible?*
  - a. Paint.
  - b. Paper.
  - c. Electrical outlet.
  - d. Gasoline.
5. *Which fuel will burn the fastest?*
  - a. Woodchips.
  - b. Boards.
  - c. Logs.
  - d. Sticks.
6. *As a fire involving ordinary combustibles burns, oxygen is*
  - a. Given off.
  - b. Used up.
  - c. Unchanged.
  - d. Produced.
7. *Putting water on a fire can put it out because the water*
  - a. Takes the heat away.
  - b. Adds oxygen.
  - c. Causes a chemical reaction.
  - d. Removes the fuel.
8. *What is the best method to slow down the spread of smoke and gases?*
  - a. Open a window.
  - b. Close the door.
  - c. Fight the fire.
  - d. Call a supervisor.

# Human Factors in Fire Safety

## Module Three contains information on:

---

- |                                   |                                       |
|-----------------------------------|---------------------------------------|
| ▶ People in Nursing Facilities    | ▶ Lifelong Developmental Disabilities |
| ▶ Late Life Onset Disabilities    | Mental Retardation                    |
| Visual Impairment                 | Cerebral Palsy                        |
| Hearing Impairment                | Autism                                |
| Alzheimer's Disease and Dementias | ▶ Mental Illnesses                    |
| Mobility Impairment               | ▶ Firesetting                         |
| Epilepsy                          | ▶ Resident Activities                 |
|                                   | ▶ Staff Assessment                    |
|                                   | ▶ Human Behavior in Fires             |

## Important Points

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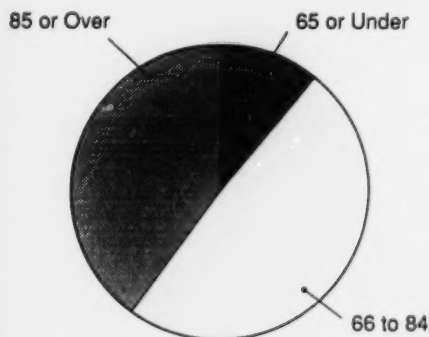
- ▶ Residents of nursing facilities are not all alike. When planning and practicing the fire-emergency plan, both the strengths and limitations of the residents should be considered.
- ▶ Residents are likely to have disabilities. Most of these disabilities are late life onset, although sometimes they are lifelong developmental disabilities.
- ▶ Staff members should assess themselves so that they know their own strengths and limitations in a fire emergency.
- ▶ Most people do NOT panic in a fire emergency.

## ► People in Nursing Facilities

More than one and a half million people live in nursing facilities. There is a wide diversity in the types of people who live in these facilities. There are older people who can no longer care for themselves. There are older people who recently underwent surgery and need therapy for a short time. There are even young people with permanent brain damage due to head traumas. Not all residents are alike and they don't all have the same needs.

Although the residents are not all the same, many of them have the same general characteristics. Here are a few characteristics of the nursing facility population.

### Distribution by Age\*



- People who live in nursing facilities are most likely to be in their 80's.
- A large majority (72%) are females.
- Many are widowed: 73% of females and 33% of males.
- The average length of stay is 2.9 years.
- People who live in nursing facilities often have disabilities.

### Variations in Disabilities Affecting Adults

As we grow older, we grow less and less like people the same age as ourselves. This increasing diversity does not disappear just because we live in nursing facilities. Even though residents in nursing facilities tend to be there because of some disability, these disabilities and people's responses to them vary. People also differ in their attitudes, life histories, supports and friends, and other personal characteristics. The residents remain individuals.

Residents with late life disabilities may have led fairly normal or mainstream lives until their disability appeared. Other residents may have lived their entire lives with a lifelong developmental disability. The timing of the onset of the disability may mean differences among residents in how they deal with their disabilities, differences in their strengths and limitations, and, of course, differences in what staff members may need to do in an emergency.

\* Source: Nursing Home Utilization by Current Residents: United States, U.S. Department of Health and Human Services.

## ► **Late Life Onset Disabilities**

- Late life disabilities vary in their causes. These causes include diseases, accidents, illness, lifestyles, history of health care, and environmental causes.
- Late life disabilities seem to be more prevalent today, perhaps reflecting the reality that more and more adults are living long enough to experience these disabilities.
- There are about six million American people age 65 and older with visual impairments. The majority of these people enjoyed normal vision all of their lives and only became visually impaired in late life.
- There are over nine million deaf or hard of hearing older Americans, with the number projected to grow to eleven million by the year 2000.
- Alzheimer's Disease and other dementias affect millions of older Americans in later life. Alzheimer's Disease is more likely among very old (age 85 and above) persons than among the young-old (65 to 74 years old), and, of course, residents of nursing facilities tend to be of advanced age.
- Some late life disabilities (e.g., disabilities after a stroke) can be managed to different degrees by medications, rehabilitation therapy, and assistive devices such as walkers, pointers, and hearing aids. Medications are the most common and most cost-effective means of managing late life disabilities over time.

List the late life onset disabilities which affect the residents who live in your facility.

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## ► Visual Impairment

Residents may have a significant visual impairment which cannot be corrected by glasses. Many people have a loss of vision and require glasses as they grow older. The vision loss may be complicated by glaucoma and/or cataracts. A few residents may have been blind since childhood.



### IMPACT ON FIRE SAFETY

#### STRENGTHS

- Able to understand fire safety procedures.
- Can communicate danger to other residents.
- May be able to evacuate with limited assistance.
- Will be able to hear smoke and fire alarms.
- May have heightened tactile and olfactory sensory perceptions.

#### LIMITATIONS

- Dependent on verbal instruction.
- May be confused by unexpected objects in their path of movement.
- Unable to identify the exact location of the fire, the size of the fire, and the degree of danger in a fire emergency.
- May need assistance moving to safety quickly during an emergency.
- Unable to see exit signs.

#### SPECIAL STAFF CONSIDERATIONS

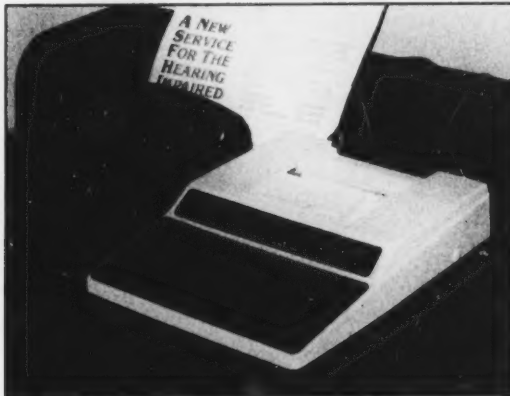
- Never leave objects such as food carts, laundry carts, and maintenance equipment unattended in the corridors or exits.
- Staff should tell residents what is happening during an actual emergency.



## ► Hearing Impairment

Nursing facility residents may have a hearing impairment which can vary from mild difficulty hearing to profound deafness. In most cases this hearing loss is a result of aging. Many residents wear a hearing aid. Some of the residents have a hearing loss resulting from a lifelong developmental disability and they are more likely to use sign language to communicate than are people who lose their hearing late in life. Hearing

loss of higher pitch sounds is the most common. For this reason, those with hearing loss will have a harder time distinguishing a female's speech than a male's.



*Text telephones (TTP's), formerly known as telephone devices for the deaf (TDD's), make telephone communication possible for people with hearing impairments.*

*Remember to post the fire department TTP or TDD number.*

### IMPACT ON FIRE SAFETY

#### STRENGTHS

- Normal range of intelligence.
- Normal range of social development.
- May be able to move to safety without physical assistance.
- May be able to communicate with use of hearing aids.
- If the impairment is a lifelong disability, may communicate through sign language.
- Other senses, such as sight and smell, may be more acute.

#### LIMITATIONS

- Often experience difficulty in understanding language, especially subtle shades of meaning.
- Inability to hear smoke alarms or fire alarms without special training; or possibly not at all.
- If the impairment is a lifelong disability, speech may be unclear.
- Likely to become confused during an emergency.

#### SPECIAL STAFF CONSIDERATIONS

- Staff should practice resident emergency communications procedures in case of fire.
- Staff should speak slowly and in a deeper pitch to residents with hearing loss.

*Even "successful" lip or speech readers tend to understand only about one third of what is said to them.*

*Smoke and fire alarms with built-in strobe lights and alarms connected to vibrating beds are important fire safety devices for people with a hearing impairment.*

## ► *Alzheimer's Disease (AD) and Dementias*

AD and related dementias are **not** a normal part of aging. AD is a disease of unknown cause that may affect almost half the people 85 years and older, about four million Americans. About half of the people in nursing facilities have AD or a related disorder. Victims experience progressively more serious effects.

**Suspicious changes in behavior to look for during the onset of AD are:**

- Memory problems, particularly recent memory. The person may repeatedly forget to turn off the TV, forget taking the morning's medication, or forget a recent conversation.
- Mild personality changes such as less interest in things or a sense of apathy and tendency to withdraw from social interaction.

**As the disease progresses, behavioral changes include:**

- Problems with thinking or intellectual functioning, e.g., problems with numbers, understanding reading materials, finding the right words, poor judgment.
- Agitation, irritability, quarrelsomeness.
- Less ability to dress appropriately.

**Later stages of the disease include:**

- Confusion, disorientation about what year it is, where they live, names of familiar people and places.
- Loss of bladder and bowel control.
- Inability to engage in conversation, inattentiveness, unpredictable moods, may appear to be uncooperative.

### IMPACT ON FIRE SAFETY

#### STRENGTHS

- Ability to hear, see, and talk.
- Mobility.

#### LIMITATIONS

- Forgetfulness, such as leaving cigarettes unattended.
- Unable to remember what to do in a fire emergency, e.g., refusing to stay in their rooms.
- In advanced stages, confusion or disorientation, e.g., unable to remember a path of egress.
- May experience unreasonable fear of rescuers such as firefighters.

#### SPECIAL CONSIDERATIONS

- Do not expect the resident to cooperate with staff emergency efforts.
- Staff must monitor residents to make sure they do not leave the refuge area.
- Locking the door leading into the smoke zone where the fire is located will prevent residents from returning to the fire area.

## ► Mobility Impairment

Residents may have a significant mobility impairment which may result from arthritis, a stroke, heart conditions, Parkinson's Disease, medications, or other problems. A few of the residents may have a mobility loss caused by cerebral palsy or some other lifelong disability.



*Some residents cannot get around without a wheelchair.*

*A few of the residents may be taking a medication which impairs mobility.*

### IMPACT ON FIRE SAFETY

#### STRENGTHS

- Able to understand fire safety procedures.
- Can communicate danger to others.
- May be able to evacuate without assistance using a wheelchair.

#### LIMITATIONS

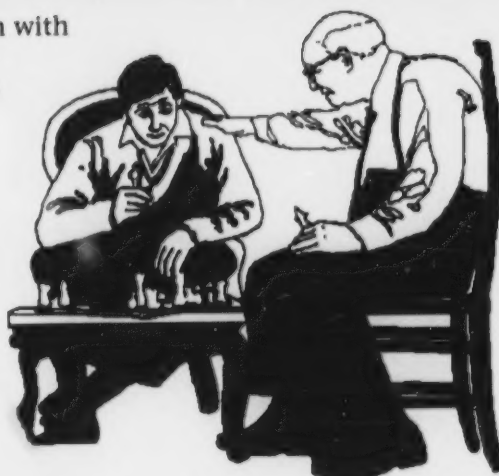
- Most likely, will not be able to evacuate without assistance.
- May find it difficult to maneuver past objects in the path of exit.
- Will have extreme difficulty evacuating down stairs.

#### SPECIAL STAFF CONSIDERATIONS

- Never leave objects such as food carts, laundry carts, and maintenance equipment unattended in corridors or exits.
- When moving several people in an emergency, assist faster moving people to safety before moving slower people to prevent exits and corridors from being blocked.

## ► Epilepsy

Epilepsy is a chronic condition with various causes. People with this disability have recurrent seizures due to excessive electrical discharges in their brain. Epileptic seizures may vary widely in type and severity, from severe seizures involving unconsciousness and uncontrollable jerking muscular movements, to very mild seizures which may involve only a very brief lapse in consciousness. Small seizures may occur in which a person appears dazed or confused. People with epilepsy may experience bizarre sensations and may make meaningless simple or complex movements. Because it can occur throughout the course of life, epilepsy may be a late life onset or developmental disability.



### IMPACT ON FIRE SAFETY

#### STRENGTHS

- Normal intellectual capabilities.
- Likely to be able to follow safety procedures in a normal fashion.
- Epileptic attacks are usually brief.
- Usually will be able to warn others of danger during an emergency.

#### LIMITATIONS

- Often accompanied by a secondary handicapping condition.
- Epileptic seizures include a partial or total loss of consciousness.
- A person suffering a *grand mal* seizure usually goes into a deep sleep.
- May be groggy due to medications.
- Stress from a fire emergency could cause an epileptic seizure.

#### SPECIAL STAFF CONSIDERATIONS

- After an epileptic attack, a resident will need special assistance if an emergency occurs.
- Residents subject to epileptic seizures should be approached in a calm manner during an emergency.



## ► Lifelong Developmental Disabilities

- A developmental disability is currently defined under the Developmental Disabilities Assistance and Bill of Rights Act as a severe, chronic disability of a person which:
  - a. is caused by a mental or physical impairment or combination of mental and physical impairments;
  - b. happens before the person turns age 22;
  - c. is likely to continue indefinitely;
  - d. results in major limitations in how the person functions in three or more of the following areas: self-care; receptive and expressive language; learning; mobility; self-direction; capacity for independent living; and economic self-sufficiency; and
  - e. reflects the person's need for a combination and sequence of special treatment, or other services which are of lifelong or extended duration and are individually planned and coordinated.
- Developmental disabilities may include cerebral palsy, blindness, deafness, mental retardation, orthopedic handicaps, multiple disabilities, and other lifelong conditions.
- Due to medical progress in medications and prolonged care by their families, more adults with developmental disabilities are surviving to later life.
- An estimated 10 out of every 1000 persons over age 60 have a developmental disability.

List the lifelong developmental disabilities that affect the residents who live in your facility.

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The majority of older people who have a visual, hearing, or mobility impairment did not become impaired until later in life. They have late life onset disabilities, not developmental disabilities.

*Just as small children do not understand the consequences of playing with matches and lighters, fires may be accidentally set by mentally retarded residents due to fireplay.*

## ► Mental Retardation

Residents with mental retardation have below average intellectual functioning and may have difficulty in adapting to changes in the environment. The severity of the retardation may be classified into four levels, according to criteria set forth by the American Association on Mental Deficiency: mild, moderate, severe, and profound. These levels are determined from performance on standardized intelligence tests and from various measures of adaptive behavior. In all likelihood, adults with mental retardation who have survived to live in a nursing home will have mild or moderate retardation and will be relatively high functioning.



### IMPACT ON FIRE SAFETY

#### STRENGTHS

- Once taught a procedure, likely to follow it without question.
- May be able to learn that there is a need to evacuate during a fire emergency.
- Able to recognize warning signs of a fire emergency.
- Likely to be concerned for the safety of others.
- May assist others.

#### LIMITATIONS

- Below average intellectual functioning.
- Possible difficulty in adapting to changes in the environment.
- May be inflexible if expected procedures do not work.
- Require smaller steps that must be repeated over and over for a new learning.
- May have a short attention span.
- Possibly more fearful, may hide rather than evacuate in a fire emergency.
- Likely to have a secondary handicapping condition (e.g. mobility impaired, hearing impaired, or visually impaired.)
- May have difficulty in expressing unfamiliar ideas.
- May become frightened in a fire emergency.
- Reactions can be unpredictable.

#### SPECIAL STAFF CONSIDERATIONS

- Staff may need to provide extra help in an emergency.
- Staff should stay with residents to be sure they remain in the refuge area.

## ► Cerebral Palsy

Cerebral palsy is classified as a developmental disability. People with cerebral palsy have problems in motor functioning as the result of damage to certain areas of the developing brain. The most frequent indication of the disability is muscle spasms. Other indications may include uncontrollable movements, balance problems, muscle rigidity, and various combinations of those symptoms. The disorder may affect movements in both arms and legs or may be present in only arms or legs. Speech is often impaired; however, cerebral palsy does not affect intelligence unless accompanied by mental retardation. About one-third of those with cerebral palsy have some form of mental retardation; two-thirds do not. The severity of symptoms varies with each individual.



*People with cerebral palsy often have difficulty controlling their body movements.*

### IMPACT ON FIRE SAFETY

#### **STRENGTHS**

- Normal intellectual capabilities.
- Ordinarily should recognize danger signals in a normal manner.
- May be able to communicate danger to others.

#### **LIMITATIONS**

- Most likely will not be able to evacuate without assistance.
- Usually involves posture disorders, awkward and involuntary movements, poor balance, and difficulty walking.
- Often have vision problems.
- Speech or articulation problems can be expected.
- May be unable to call for help.
- Sometimes accompanied by mental retardation and learning disabilities.
- Fear may cause muscle rigidity and uncontrolled strength.

#### **SPECIAL STAFF CONSIDERATIONS**

- Staff may need to monitor activities such as smoking since residents could easily start an accidental fire.
- Staff should remember to communicate normally to adults with cerebral palsy, as most have no mental disability.

## ► Autism

Autism is a severely incapacitating lifelong developmental disability. Symptoms of autism usually appear during the first three years of life. Autism is four times more common in males than in females. Its causes are not clearly understood, but there are a number of identifiable symptoms. The most apparent and overriding of these is "social withdrawal." A person with autism may avoid all forms of social contact, and may even appear not to recognize that there are other individuals in the environment. Other symptoms include severe temper tantrums, severe impairment of speech and language development, stereotyped behaviors, self-injurious behavior, and sensory disturbances.

Although most people with autism perform in the retarded range on tests of intelligence, autism is considered a separate disability because of some distinctive differences in specific areas of development. It is one of the rarer forms of developmental disabilities, and some significant progress in its treatment has been made. Individuals who are autistic are considered to be at extreme risk in a fire emergency.

### IMPACT ON FIRE SAFETY

#### STRENGTHS

- Some people with autism have the intellectual ability to understand fire evacuation.
- Although speech and language skills may be absent, specific thinking capabilities may be present.
- May be physically able to evacuate with limited assistance.

#### LIMITATIONS

- Bizarre responses to various aspects of the environment often occur.
- Will most likely have very poor social skills.
- Will most often have abnormal ways of relating to people, objects, and events.
- Often appear to be deaf and do not respond to voices or loud noises.
- May not respond to fire alarms or other fire cues.
- Communication skills are often extremely impaired.
- Approximately 50% cannot speak or have peculiar speech patterns.
- Unlikely to warn others of danger.
- Abnormal responses to pain and other sensations may occur.
- Unable to follow directions in an emergency.

#### SPECIAL STAFF CONSIDERATIONS

- A staff member will most likely be needed for assistance during a fire emergency.
- Staff need to monitor residents to make sure they stay in the refuge area.



## ► Mental Illnesses

Mental illnesses may affect residents of nursing facilities. Illnesses include depression, schizophrenia, affective disorders (bi-polarization; manic-depressive), anxiety disorders, and panic disorders.

*Schizophrenic* residents may exhibit severe psychotic symptoms. Psychotic means out of touch with reality, or unable to separate real from unreal experiences. A common symptom is hallucination, that is, hearing voices or seeing things that are not there.

*Bi-polar* or *manic-depressive* residents have pronounced mood swings, going from very depressed and non-responsive to very excited and energetic with no apparent cause.

Residents with *panic disorders* may have sudden strong feelings of fear for no apparent reason. These feelings of fear appear for a short period of time, disappear, and then reappear later.

Residents with *anxiety disorders* have difficulty handling their emotions and they may feel a sense of dread or panic. They may spend huge amounts of energy trying to cope with it, leaving them chronically tired and worn out.

Residents with *depression*, characterized by feelings of hopelessness and inadequacy, may be lethargic and uninterested in their surroundings.

### IMPACT ON FIRE SAFETY

#### STRENGTHS

- Normal intellectual capabilities.
- Normal speech, hearing, and mobility.

#### LIMITATIONS (schizophrenia)

- May be unable to concentrate on one thought for very long and may be easily distracted.
- May be unable to sort out what is relevant from the cues in the environment.
- May be groggy and unable to be roused easily due to medications.
- May be subject to unpredictable sleep patterns and during a fire emergency, can't be located.
- Due to paranoia, may be unwilling to cooperate with staff during an emergency.

#### LIMITATIONS (bi-polar/manic-depressive)

- May be highly excitable and difficult to control in an emergency.
- May be very depressed and unwilling to cooperate.
- May either be sleeping or awake at odd hours.

#### LIMITATIONS (panic and anxiety disorders)

- May hyperventilate and pass out in an emergency.
- May be highly excitable and difficult to control and may resist evacuation.
- May act hysterically and irrationally.

#### SPECIAL STAFF CONSIDERATIONS

- Since behavior of a person with a mental illness can vary widely depending on medications, environmental conditions, and unpredictable events, the fire safety planning should be based on "worst case" scenarios.

## ► Firesetting

Although most fires are accidents, a small percentage of residents and staff are firesetters. That is, they will set fires on purpose.

### Why do residents set fires?

- To get attention.
- To act out anger at the staff, family, or other residents.
- For excitement (because of boredom).
- Because of mental disorders.

### What are the warning signs to look for?

- Past history.
- Hostile attitude towards staff, family, or other residents.
- Other kinds of acting out or aggressive behavior.
- Asking for matches and smoking materials; playing with matches.
- Verbal threats.

### Possible actions to take:

- Severely limit the individual's access to matches, lighters, lighter fluid, or smoking materials.
- Closely supervise the individual.
- Try to keep the individual involved in the facility's activities.
- Talk to the person and try to find out if the problems can be resolved.
- Alert all staff members.
- Remove the individual from the facility as a last resort.

### Firesetting by Staff and Former Employees:

- Name some reasons why current or former staff members would set a fire.
- How can this type of firesetting be prevented?
- What are some of the warning signals?

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*It is important to keep records of a resident's firesetting behavior and to pass this information on if the resident is moved to a new facility.*

*Arson fires are often found in places where accidental fires do not normally occur. Intentionally set fires are usually much larger, hotter, and grow more rapidly than accidental fires.*

## ► Resident Activities

### How do your residents spend their time?

*These are the typical activities of residents in nursing facilities. Use this information to plan your fire prevention and fire emergency plan.*

#### Resident Activities

- Sleeping
- Eating
- Leisure activities such as: watching TV, playing cards, listening to the radio, reading, talking, using the telephone, playing games, making crafts, visiting with relatives.
- Religious activities such as: reading the Bible, singing, listening to a guest minister.
- Active leisure activities such as: ping pong, walking, exercising, swimming.
- Personal care such as: showering, dressing, grooming.
- Shopping, religious services, outdoor picnics, going to visit family or other outside events.



### How do these activities relate to fire safety?

- Many fires are caused by things staff and residents do. Precautions must be taken if and when they engage in high risk activities such as: Smoking or drinking alcoholic beverages, ceramics or woodworking.
- Knowing where residents are likely to be at certain times of the day is important in developing a fire emergency plan. In a fire, one important task is to be sure everyone is out of danger. If someone is not in his or her room, staff needs to know where the person might be at a particular time of the day or night.

#### What appliances do your residents use?

*Directions: Check the appliances that are common in your facility.*

- |                                       |                                           |
|---------------------------------------|-------------------------------------------|
| <input type="checkbox"/> TV           | <input type="checkbox"/> Air conditioner  |
| <input type="checkbox"/> Radio        | <input type="checkbox"/> Clock            |
| <input type="checkbox"/> Stereo       | <input type="checkbox"/> Humidifier       |
| <input type="checkbox"/> Hair dryer   | <input type="checkbox"/> Vaporizer        |
| <input type="checkbox"/> Curling iron | <input type="checkbox"/> Heating pad      |
| <input type="checkbox"/> Iron         | <input type="checkbox"/> Electric blanket |
| <input type="checkbox"/> Fan          | <input type="checkbox"/> Lamp             |

*Staff must know about residents with unpredictable sleeping patterns.*

**► Staff Assessment**

**Directions: Assess yourself.**

**1. Which of these things can you do easily?**

- ☐ Move a bed with a resident in it into the hallway.
- ☐ Transfer a resident from a bed to a wheelchair.
- ☐ Quickly close all of the doors in a wing.
- ☐ Carry a resident from an upper floor to a lower one.

**2. Would you have difficulty with any of these tasks?**

- ☐ Hearing a fire alarm or emergency announcement.
- ☐ Seeing smoke, especially at night when lights are dim.
- ☐ Moving quickly in an emergency.
- ☐ Smelling smoke.
- ☐ Using a fire extinguisher to put out a fire.

**3. Have you had any of these experiences? Share your reactions and the reactions of others with the group.**

- ☐ A fire in a long term care facility.
- ☐ A fire in a skilled nursing facility.
- ☐ A fire when it was necessary to move residents from the building.
- ☐ A fire in a location other than a nursing facility.
- ☐ A fire in which people were severely injured or died.

**4. How do you think you would react to a fire emergency?**

- ☐ Calmly.
- ☐ I'd feel frightened, but I would not panic.
- ☐ Complete panic.
- ☐ I'm not sure.



## ► Human Behavior in Fires

**People do not recognize the life threatening nature of a small fire.**

- Some people disregard initial signs of fire in group situations until they confirm their observations by checking to see if other people notice and interpret the same signs as threatening. Waiting for someone else in the group to act first wastes precious time.
- Many people will investigate, looking for reinforcing cues — other signs that there really is a fire, other than smoke. Looking for the fire before following emergency procedures can endanger lives.
- Older people may need more time to escape from a fire because of slower recognition of a fire and an increased likelihood of immobility and sight problems.
- Staff may put residents' lives in danger because they attempt to fight the fire before starting rescue, alerting, and confinement actions. Rescue should be the first action in a fire.

**There is a strong attachment to personal belongings.**

- People have been known to refuse to leave their rooms and also to return to their rooms to gather their belongings after the staff thought they had been moved to safety.
- People will also attempt to fight the fire when it threatens their personal belongings. Many fire-related injuries and deaths can be prevented by prompt evacuation.

**Most reactions to a fire situation involve attempts to preserve life and property.**

- Maladaptive behavior often referred to as panic rarely occurs, such as competition to get to an exit or immediately jumping from a window.
- Maladaptive actions are usually taken after more adaptive actions have failed.
- A frightened resident may hide in a room without seeking help. The resident may think hiding is a way to escape the fire.

*Education and training have a positive effect on the response of people in a fire emergency. Staff can be taught to react correctly to the early fire cues.*

*Many fire deaths can be prevented if people evacuate promptly.*

*Most people do not panic in a fire emergency.*

**Module Summary Questions**

1. *People who live in nursing facilities can best be described by the following statement:*
  - a. These people are more alike than different.
  - b. These people are more different than alike.
  - c. These people are completely different.
  - d. These people are exactly alike.
2. *Which of the following is almost always a late life onset disability?*
  - a. Mobility impairment.
  - b. Visual impairment.
  - c. Cerebral Palsy.
  - d. Alzheimer's Disease.
3. *Approximately how many people over the age of 60 have a developmental disability?*
  - a. 10 out of every 1,000.
  - b. 1 out of every 1,000.
  - c. 100 out of every 1,000.
  - d. 50 out of every 1,000.
4. *Which of the following is a warning sign that a resident may set a fire on purpose?*
  - a. Always wanting to be the center of attention.
  - b. Wanting extra time alone.
  - c. A hostile attitude toward staff, family, or other residents.
  - d. Complaining about feeling old and forgotten.
5. *What is the primary reason that some staff members may not immediately begin rescue, alerting, and confinement procedures during a fire emergency?*
  - a. They start to panic.
  - b. They gather their belongings.
  - c. They become completely confused.
  - d. They attempt to fight the fire.
6. *What is the best way to educate staff members about appropriate action in a fire emergency?*
  - a. Hold regular three minute fire drills.
  - b. Explain how fast fire grows.
  - c. Show them movies about fire.
  - d. Tell them about previous fire disasters.

# Fire Emergency Planning

## Module Four contains information on:

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- |                                    |                                             |
|------------------------------------|---------------------------------------------|
| ▶ Defend in Place                  | ▶ Moving Residents to Safety                |
| ▶ Smoke Zones                      | ▶ Responding to a Fire Involving a Resident |
| ▶ Evacuation of Nursing Facilities | ▶ The Fire Safety Team                      |
| ▶ Rescue, Confine, and Alarm       | ▶ Facts About Your Facility                 |
| ▶ Emergency Response Procedures    | ▶ Fire Drill Planning                       |
| ▶ Responding to the Alarm          | ▶ Fire Drill Policies                       |
|                                    | ▶ Resident Involvement                      |

## Important Points

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- ▶ Defend in place is the strategy used in nursing facilities.
- ▶ Total evacuation is rarely necessary.
- ▶ Nursing facilities are designed so that the interior walls and doors slow down the spread of fire and smoke.
- ▶ During a fire emergency, residents are usually left in their rooms with the doors closed.
- ▶ Nursing facilities are divided into smoke zones. A smoke zone is an area that is enclosed by smoke tight doors and smoke barriers. When a fire occurs in one zone, it is difficult for smoke to spread to the other zones.
- ▶ When a fire occurs, the staff have three major goals: Rescue, Confine, and Alarm.
- ▶ The main responsibility of the staff is to protect the residents.
- ▶ Never take the fire alarm for granted.
- ▶ Move residents only when their safety is immediately threatened.
- ▶ Everyone must work together to make a facility fire-safe.
- ▶ During a fire emergency, staff must act simultaneously. Your responsibility during a fire emergency will vary in different situations.

## MODULE FOUR

*During most fire emergencies, the residents in the room where the fire is located are moved to a nearby safe area and all other residents are left in their rooms or other safe areas with the doors CLOSED.*

## ► **Defend in Place**

**"Defend in place" is the strategy used in nursing facilities in most fire emergencies.**

Defend in place means moving people from the fire area to a safe area in the building, usually on the same floor, and leaving all other residents in their rooms or other safe areas with the doors closed.

**The "defend in place" strategy is used for several reasons.**

- Moving elderly or sick people out of a building could endanger their lives. Some elderly should not be moved because of a medical condition.
- In bad weather, it is especially dangerous to move sick or elderly residents outside.
- Moving bedridden and mobility impaired residents is difficult.
- It takes too much time to evacuate everyone from the facility. In most cases the fire department has the fire out in the time it takes to evacuate just a few residents down the stairs and outside.
- Moving a resident may place the resident in more danger than not moving the resident at all.

**Total building evacuation is rarely needed.**

- Built-in fire protection usually provides protection for the residents from fire and smoke long enough for the fire department to arrive and put the fire out. Nursing facilities have:

**Fire protection equipment:** Fire alarms systems, sprinkler systems, and smoke detection systems which either suppress the fire or give early warning.

**Fire barriers:** Wall and door assemblies which restrict the spread of fire.

**Smoke barriers:** Wall and door assemblies which restrict the passage of smoke.

**Smoke zones or compartments:** Areas enclosed by smoke barriers on all sides, including the top and bottom.

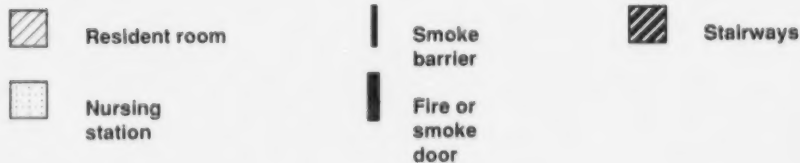
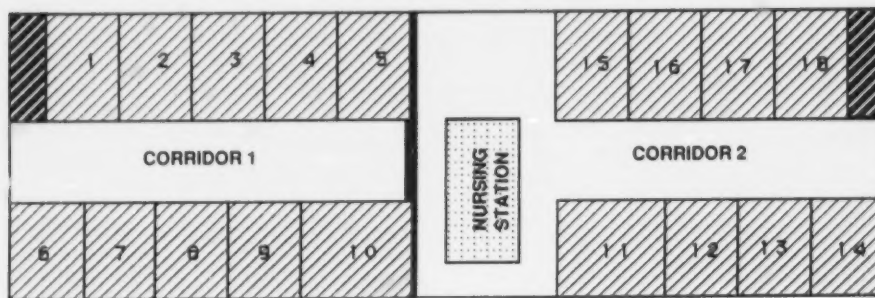
**Areas of refuge:** Areas that are protected by fire resistant construction, have access to stairs or an outside door, and provide enough space for potential occupants.

- Residents will not be protected by fire protection features such as fire barriers, unless the staff closes the door to the room on fire and the doors to all of the resident rooms.



## ► Smoke Zones

### Typical Floor of a Nursing Facility



*Smoke barriers separate each floor of the building into two or more compartments, sometimes called smoke zones or areas of refuge. If there is a fire in one of the smoke zones, the fire and smoke barriers slow down the spread of fire and smoke into the other zones.*

### Analysis of the Floor

1. How many smoke zones are located on this floor?
2. Which rooms are in each zone?

### Situation: You discover a fire in Room 17.

1. Where would you move the residents from Room 17?
2. Would you evacuate any of the other residents from their rooms?
3. Under what conditions would you evacuate all of the rooms in corridor 2 (Rooms 11 through 18)?

## ► Evacuation of Nursing Facilities

Evacuation is movement from a dangerous or potentially dangerous area to a safe area. These safe areas depend on the size and location of the fire but they could be in another resident's room with the door closed, on the other side of smoke or fire doors, or on another floor of the building. There are four types of evacuation: partial, horizontal, vertical, and total.

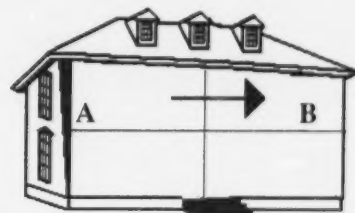


### Partial Evacuation (also called immediate action evacuation)

Partial evacuation is the removal of people who are in the fire room and are in immediate danger to a nearby safe area. It may also involve moving a limited number of people from adjacent rooms.

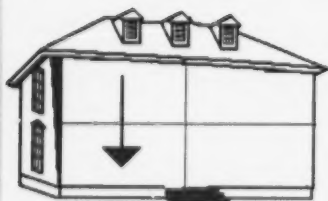
### Horizontal Evacuation

Horizontal evacuation is usually the most extensive type of evacuation conducted by nursing facilities. It involves moving residents from one smoke zone to another on the same floor.



Smoke barriers separate each floor of the building into two or more compartments, sometimes called smoke zones or areas of refuge.

*If there is a fire in one of the zones, the smoke barriers slow down the spread of smoke into the other zones.*



*In vertical evacuation, you move residents to another floor.*

### Vertical Evacuation

Vertical evacuation of residents is extremely difficult and should only be done as a last resort. If fire or smoke are directly threatening the safety of residents on a particular floor, vertical movement is necessary. Safety can usually be found on a lower floor.

### Total Evacuation

Total evacuation is the removal of all residents and staff from the building to an area outside the building or to another building. Total evacuation is only necessary if the fire is so threatening that it is unsafe to remain inside the building. In the rare event that total evacuation is necessary, emergency forces should provide assistance.

## ► Rescue, Confine, and Alarm



### **R**escue

- Resident safety is the staff's first and main concern.
- Remove residents from the immediate fire area as quickly as possible.



### **C**onfine

- Control the spread of fire and smoke by closing the door to the fire room.
- Close the doors to all of the residents' rooms to keep the smoke out.



### **A**larm

- Notify other staff members and the fire department immediately.
- There are three stages of alarm:
  1. Shouting out for assistance from other staff. Be sure that other staff members are aware that there is a fire and that is why you are calling out for assistance.
  2. Sounding the building fire alarm.
  3. Calling the fire department.

*When a fire occurs in a nursing facility, the staff has three major goals. These are called the R. C. A. goals.*

**► Emergency Response Procedures**

The emergency response procedures are the actions that you need to take to accomplish the R.C.A. goals. Many of these procedures may be done at the same time by several staff members.

When a fire is discovered, remember these procedures:

**1. Remove the resident from danger and confine the fire by closing the door to the fire room.**

- Your main responsibility is to protect the residents.
- Quickly move residents out of the room of fire origin and close the door behind you.
- If you cannot rescue a resident in the fire room, exit the room and close the door. The fire department will try to rescue the resident when they arrive. Do not endanger yourself and the other residents on the floor while continuing an unsuccessful effort.
- Take the resident to the closest area of safety. It could be another resident's room or on the other side of a smoke barrier and close the door.
- Remember to confine the fire by completely closing the door to the fire room.

**2. Assess the fire.**

- Quickly judge the size and severity of the fire.
- Ask yourself,  
"What is burning?"  
"How big is the fire?"  
"How fast is it spreading?"

**3. Call for help.**

- Tell other staff members that there is a fire.
- On the page system, announce your facility's code word for a fire, such as "Code Red" or "Dr. Red," etc. and the location of the fire.

**4. Activate the alarm.**

- Pull the fire alarm.
- If you pass the alarm while you are moving a resident to safety, pull it as you go by.
- Report the location and severity of the fire to the shift supervisor.



## ► Emergency Response Procedures

### 5. Call the fire department.

- Very often it is the responsibility of the charge nurse or shift supervisor to call the fire department.
- Always call the fire department, even if you think the fire is small and you think you can put it out.
- Early notification is very important.
- If your facility's alarm system notifies the fire department automatically, you still need to call them to make sure that they received the alarm. You also need to give them more details about the fire.
- Tell the fire department:
  - a. The facility's name and address.
  - b. The fire location.
  - c. Your name.
  - d. The phone number where you are calling from.
- Be sure a staff member is stationed outside your facility to direct firefighters to the fire.
- Post the fire department's telephone number by the telephone.



*Many of these steps will be done at the same time. That's why the staff needs to function as a team. The entire procedure should take less than three minutes.*

### 6. Close the doors.

- Move all residents who are in open areas at the time of the fire to safe, nearby rooms and close the doors.
- If residents are in rooms that may be immediately threatened by fire or smoke, move them to a safe area farther away from the fire such as another fire zone.
- Instruct residents to stay in their rooms.

### 7. Extinguish the fire.

- Staff and resident safety **SHOULD NOT** be jeopardized.
- Unless a resident is involved in the fire and you have received regular professional training, **DO NOT** attempt to extinguish it. Keep the door closed and wait for firefighters to arrive.



### Total Building Evacuation

- Total building evacuation is rarely necessary.
- If there is a major catastrophe and total evacuation is needed:
  - a. Move the residents who are most at risk from fire first.
  - b. Move all ambulatory residents.
  - c. Move wheelchair residents.
  - d. Move all bedridden residents.
- Facilities should develop a master disaster plan to follow in case the building must be evacuated. The plans should include busing residents to a nearby church or community center.
- Keep a record of all residents' prescriptions to take to new location in case of building evacuation.

► **Responding to the Alarm**

*Never take the fire alarm for granted. When it goes off, you need to act quickly, calmly, and correctly. Lives are depending on YOU!*

**Situation:** You are walking down the hall and the fire alarm sounds.

**Why did the alarm go off? List some possible reasons.**

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**What should you do? List the actions in the order that you should do them.**

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## ► Moving Residents to Safety

### When should you move the residents?

- Residents are moved when their safety is immediately threatened.
- Remember, in most cases, the defend in place strategy is used.

### How should you move the residents?

- Walk with the residents.

Escort ambulatory residents to the safe area by walking beside them with your hand on their arm or shoulder.

If several ambulatory residents need to be moved, one staff member can walk with a small group to save time.

- Have someone walk behind the group.

If a larger group is moved, a second staff person should walk behind the group to prevent residents from wandering off.

- Use a wheelchair.

If the resident is already in a wheelchair or can be easily transferred to one, push the resident to a safe area. Using a wheelchair is the preferred method of moving a resident in a fire emergency.

- Move the bed.

You may be able to move bedridden residents by rolling them in their beds to the nearest safe area. However, because wheels are no longer required on beds and room furnishings often make it difficult to quickly move a bed even if wheels are provided, this method is not preferred.

- Use a carry technique or blanket drag.

Each facility should establish carry techniques that staff can use in a fire emergency. Residents who are small may be easy to carry from the room. When a resident cannot be easily carried, the blanket drag is often used.



### BLANKET DRAG TECHNIQUES

**The Team Approach:** The blanket drag is most easily accomplished by two staff members. The bed linens beneath the resident are separated from the mattress. The bed linens and the resident are then lowered to the floor as one unit and the resident is quickly dragged out of the room.

**The Lone Rescuer:** One staff member may be able to use this method alone by first placing a sheet or blanket on the floor, then standing behind the resident's head, reaching under both of the resident's arms, and lowering the resident to the floor while protecting the resident's head.



*Move residents only when their safety is immediately threatened.*

## ► Responding to a Fire Involving a Resident

*The majority of nursing home fire deaths involve residents who are very close to the place where the fire starts. Clothing, a mattress, or bedding typically comes into contact with a cigarette, match, or lighter. When this happens, staff can only move the resident if the fire can be extinguished.*

### How to Extinguish a Fire Involving a Resident

- Immediately grab a blanket or large towel and use it to smother the fire. Cover the burning surface with the blanket and hold it there so the air can't get to the fuel.
- Do not rapidly beat the fire with the blanket since this may actually fan the flames.
- If water is available in the room, throw it on the fire.
- Shut off oxygen. Use emergency shut off in hallway, if necessary.
- Do not leave the room to get help or an extinguisher. Loudly shout the facility code word for fire to get the attention of additional staff.
- Leave the door closed and wait for the fire department. Do not reopen the door.
- Remember the weakened condition of all the residents. A relatively small amount of smoke and toxic gas can lead to a multiple death fire. The most important task is to confine the fire by quickly closing the door.





## ► The Fire Safety Team

During a fire emergency, many people must act at the same time. Your responsibility during a fire emergency will vary in different situations. For example, if you discover the fire, your responsibilities will be different than if you are walking down the hall and you hear the alarm go off.

Here are a few of the responsibilities of team members:

### Shift Supervisor, Security Guard, or Charge Nurse

- Call the fire department.
- Notify the nursing facility administrator.
- Assign responsibilities to other staff members.\*
- Make decisions about when to evacuate a smoke zone.\*

### Person Who Discovers the Fire

- Remove the resident from danger.
- Close the door.
- Pull the alarm and call out the fire code word.

### Others Who Hear the Alarm or the Code Word

*Before reporting to the nursing station:*

- Check the area for smoke or flame.
- Close residents' doors.

*After reporting to the nursing station, you may be assigned to:*

- Move residents from their rooms to a safer area.
- Monitor residents who have been evacuated from their rooms.
- Greet the fire department in front of the building.

**It takes teamwork to make your facility fire-safe!**

### Learn your assignment.

Study your facility's fire safety plan and be sure you know exactly what to do in different types of fire emergencies. If you have any questions, ask your supervisor.

### Offer your suggestions.

If you think that the fire safety plan can be improved, tell your supervisor. Be sure to report any fire hazards you find to your supervisor. Your actions could prevent a fire and save lives.

### Cooperate with others.

Staff members must work together. Work with other staff members in drills and training programs so that you are part of the team. Encourage your co-workers to take fire safety seriously.



\*These decisions may also be made by the facility administrator or other designated person.

*Put your ideas and concerns in writing so that your supervisor can remember to take action.*

*During a fire emergency, everyone will have responsibilities and tasks to accomplish. You must know what to do and you must give help where it is needed.*

## ► Facts About Your Facility

What is the address of your facility?

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Give the fire department the exact address of your facility. Learn the names of the major roads that surround your facility.

*"Dr. Red" or "code red" are the most common code words for fire.*

What is the code word that means there is a fire emergency?

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Who is the administrator of your facility?

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Who might be your shift leader?

Time of Shift

Leader's Name

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Where are the evacuation routes posted for each floor?

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How do you contact the fire department?

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## ► Fire Drill Planning

### The Purpose of a Fire Drill

Fire drills in nursing facilities are conducted to prepare staff to take appropriate action in case of a fire. A properly conducted drill will test the knowledge, efficiency, and response of the staff.

### The Fire Emergency Plan

The fire emergency plan should describe the duties of all supervisory personnel and nursing facility staff during fire drills. It is important that all employees be periodically instructed and kept informed of their duties under the plan.

### Providing Staff Orientation

All staff should be told what their responsibilities are in a fire emergency as part of the standard initial staff orientation.

- Be sure to provide emergency training to each individual administrative, care, and maintenance staff member. All full time, part-time, and temporary staff must be included.

All employment files should contain the following documentation:

- Date of initial fire drill training, information covered, and a signed employee acknowledgment that training was provided.

### The Initial Orientation

- Explain the R.C.A. procedures: Simulate the evacuation of the residents from a designated fire room to the closest safe area, closing the doors, and completing proper notification.
- Describe the facility's procedures for extinguishing a fire involving a resident.
- Tell the new staff member any special code words the facility uses in case of fire.
- Show new staff members any special items used during fire drill such as a red rag or a picture of a fire which may be placed in the facility to simulate a fire.
- Explain that drills are timed and that the emergency procedures should be completed in three minutes or less.
- Explain that some drills may involve simulating the evacuation of the residents from an entire smoke zone.
- Explain that the final step in the drill will be to review what the staff did correctly as well as how staff performance could be improved.
- Explain that the drills are for the staff and that consideration should be taken not to upset or endanger the residents. Bedridden and infirm residents should not be moved.

*Fire drills are conducted to prepare staff for an actual fire emergency.*

*The fire emergency plan should describe everyone's duties.*

*Everyone should participate  
in fire drills including  
guests and visiting staff.*

## ► Fire Drill Policies

### Holding Regular Fire Drills

Fire drills should be held at least 12 times per year. Each shift should have at least 1 drill per quarter (every three months).

It is important to vary the drills:

- Change the location of the simulated fire area.
- Change the simulated source of ignition.
- Vary the time of the drills between days and nights.
- Hold some of the drills on weekends.

### Fire Drill Procedures

1. Do not tell the staff they will be having a fire drill. Select a different time period than the time of the previous fire drill.
2. If the fire alarm is connected to the fire department or to a surveillance company, notify them before sounding the alarm.
3. Activate the fire alarm.
4. A code word can be announced over the public address system to initiate the fire drill instead of using the fire alarm system. This will keep the excitement of the residents to a minimum.
5. After the alarm has been sounded, the staff should be told that this is a drill and they should simulate what they would do in an actual fire emergency.
6. The staff should perform each of the tasks assigned to them.
7. At least once a year simulate evacuation of an entire smoke zone.
8. Time the drill.
9. Write down the time that the last task is completed.
10. Document the drill by completing a Fire Drill Evaluation Form.
11. Review what the staff did correctly and discuss how staff performance can be improved. You may need to do this at the next staff meeting.



## ► Resident Involvement

### What is the resident's role during a fire drill?

Resident disruption and involvement during fire drills should be kept to a minimum. Residents should not be required to participate in staff fire drills.

Some residents will be able to understand the threat of fire and the purpose of a staff fire drill. These residents can be told what to do if they hear the fire alarm.

- If there is not a fire in their room, they should stay in their room with their door closed.
- If they are in another part of the building, they should stay where they are and wait for staff assistance.

Residents who are easily excited or disturbed should be moved to their rooms just prior to the drill. These residents should not be expected to cooperate with staff fire drills.

There are several reasons for limiting the involvement of residents during fire drills.

- The defend in place strategy does not require resident evacuation.
- Residents have varying degrees of disabilities which prohibit their involvement in fire drills.
- A highly excitable or curious resident may experience unnecessary mental distress or be injured accidentally.

### What should you tell the residents if there is a fire?

A fire is a scary experience. In a fire emergency, your residents may become frightened. It is natural to be scared. They will need your reassurance.

- When you move residents from their rooms to other locations or when you go from room to room closing doors, you may need to reassure some of the residents. For example: "There is a small fire in the kitchen. Don't worry, it is under control and everyone is safe. You will be safe here. The fire department is on the way."
- Tell all residents to immediately notify a staff member if they discover a fire.

*Nursing facility residents are not responsible for their own personal safety in a fire emergency.*

*All residents should be told to immediately notify a staff member if they discover a fire.*

**Module Summary Questions**

1. *How often is total evacuation necessary during a fire?*
  - a. Rarely.
  - b. Always.
  - c. Never.
  - d. Often.
2. *Which term is used to describe the strategy used in nursing facilities when moving residents in a fire emergency?*
  - a. Total building evacuation.
  - b. Evacuation of the fire floor.
  - c. Defend in place.
  - d. Evacuation of the floors above the fire.
3. *Which term is used to describe an area that is enclosed by smoke resistant door and smoke barriers?*
  - a. Smoke area.
  - b. Safety zone.
  - c. Smoke zone.
  - d. Evacuation zone.
4. *What is the main responsibility of the staff in a fire emergency?*
  - a. To leave the building.
  - b. To protect the residents.
  - c. To evacuate all residents.
  - d. To extinguish the fire.
5. *When do you move residents in a fire emergency?*
  - a. When their safety is immediately threatened.
  - b. When the fire alarm sounds.
  - c. When you see smoke.
  - d. When the fire department arrives.
6. *How often should each shift have a fire drill?*
  - a. Once a day.
  - b. Once every week.
  - c. Once every three months.
  - d. Once a month.

# Fire Hazards

## Module Five contains information on:

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- ▶ Fire Hazards in Nursing Facilities
- ▶ Fires Caused by Smoking
- ▶ Hazards from Smoking
- ▶ Guest Fire Safety
- ▶ Small Appliance Hazards
- ▶ Electrical and Heating Hazards
- ▶ Closet and Storage Area Hazards
- ▶ Egress Hazards
- ▶ Foam Pad Hazards
- ▶ Clothes Dryer Hazards
- ▶ Cooking Equipment Hazards
- ▶ Pressurized Oxygen Hazards
- ▶ Elevator Use in Fire Emergencies
- ▶ Fire Hazards Checklist

## Important Points

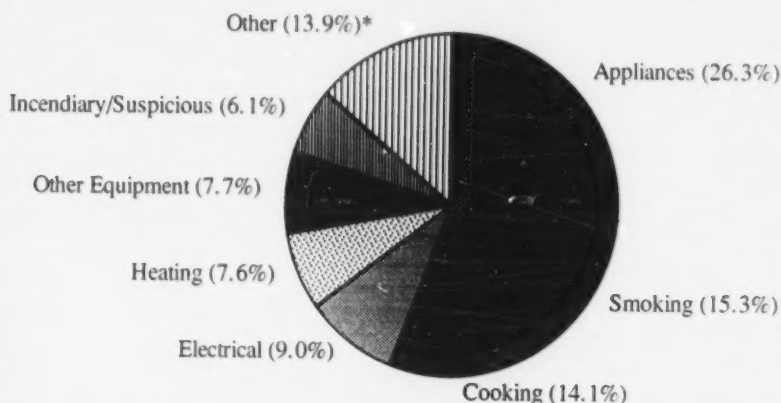
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- ▶ Staff can prevent almost all fires by identifying and eliminating fire hazards.
- ▶ Always be on the lookout for fire hazards.
- ▶ Smoking is the leading cause of fire deaths and injury in nursing facilities.
- ▶ Major causes of fire include dryers and other appliances, smoking, cooking, and electrical equipment.
- ▶ Cigarettes, upholstered furniture, and bedding are a deadly combination.
- ▶ Residents, guests, AND staff must follow the smoking policy.
- ▶ Every time a resident gets a new appliance for their room, the staff needs to inspect the appliance for safety.

## MODULE FIVE

## ► Fire Hazards in Nursing Facilities

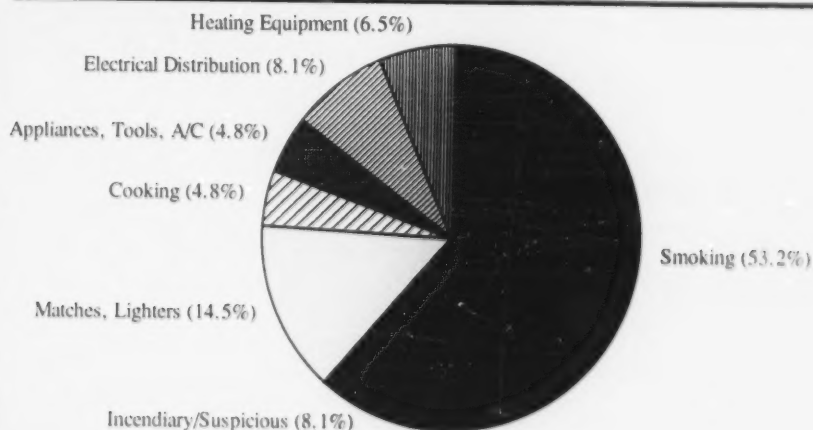
### Causes of Fires in Nursing Facilities



Fires involving appliances cause the most fires in nursing facilities. Dryer fires in particular account for more than one-sixth of all nursing facility fires.

\*Other causes: Unknown (7.2%), Open flame (3.3%), Natural (1.8%), Other heat (1.1%), Exposure (0.4%), and Child (0.1%).

### Causes of Fire Deaths in Nursing Facilities



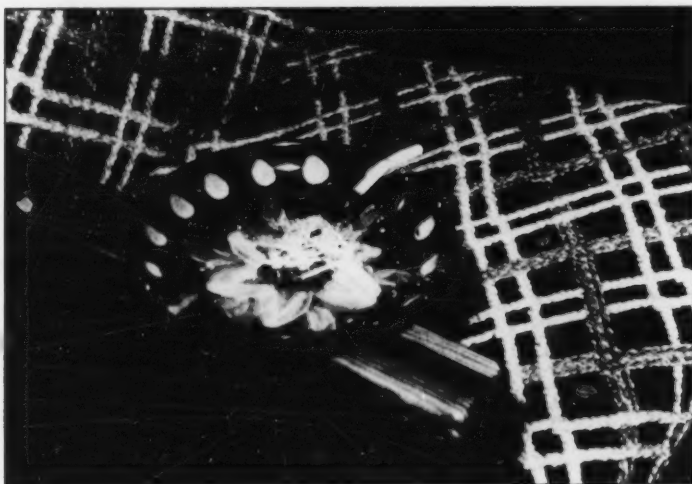
Smoking and smoking materials are the leading cause of death and injuries. The majority of victims in these fires are very close to the point of ignition which tends to be clothing, mattress, or bedding, which a lighted match, cigarette, or lighter has contacted.



## ► Fires Caused by Smoking

### How fires are started from smoking.

- Smoking in a nondesignated area.
- Falling asleep while smoking.
- Improper disposal of ashes and lighted material.
- Leaving cigarettes unattended.
- Resting ashtrays on the arms of couches and chairs.
- Smoking near concentrated oxygen cylinders.
- Accidental contact of lit smoking materials with bed linens, or clothing.



*Smoking materials in combination with upholstered furniture and bedding are responsible for many fires, fire deaths, and fire injuries in the United States.*

Staff need to enforce and follow the smoking policy. At a minimum, your policy should:

- Allow staff, residents, and guests to smoke only in the designated smoking area.
- Prohibit smoking in any room, ward, or compartment where flammable liquids, combustible gases, or oxygen are used or stored. Post such areas with *No Smoking* signs.
- Provide large tip resistant ashtrays designed so that unattended cigarettes will not fall out as they burn.
- Provide metal containers with self-closing cover devices into which ashtrays may be emptied. Place these in all areas where smoking is permitted.
- Prohibit smoking by residents classified as *not responsible* unless the resident is under direct supervision.

*Careless smoking is the leading cause of fire deaths in nursing facilities.*

*LOOK for fire hazards in your facility.*

## ► Hazards From Smoking

Almost all fires are preventable. Be constantly on the lookout for fire hazards caused by smoking. Find and eliminate these hazards **BEFORE** they start a fire.



*Discourage residents and guests from smoking in a resident's room.*

### Hazards from Smoking

- Residents or guests smoking in a resident's room.
- Residents or guests smoking near or in rooms where concentrated oxygen is being used or stored.
- Smoldering cigarettes or other smoking materials left in ashtrays, on chairs, on beds, or near other combustible material.

### How to eliminate fire hazards from smoking

- Discourage residents, guests, and staff from smoking.
- Do not allow residents to smoke when they are using concentrated oxygen.
- Carefully monitor residents and guests who do smoke and do not allow lighted smoking materials to be left unattended.
- Keep smoking materials belonging to bedridden residents at the nurses' station and provide direct supervision when they smoke.
- Require residents to smoke in a designated area. Do not allow them to smoke in their rooms.
- Check smoking areas on a regular basis for stray ashes and butts.
- Empty ashes only into metal containers with self closing lids. Never empty ashes into ordinary trash cans.

## ► Guest Fire Safety

Family members and guests of residents can start fires too! Post a guest fire safety policy near the entrance to the facility and remind guests of the policy.

Here is an example of a guest fire safety policy.

### GUEST FIRE SAFETY POLICY

*We need your help to keep your  
friends and loved ones safe from fire.*

All family members and guests must follow the fire safety policies of this facility. Here are the important things to remember:

- Smoke only in designated smoking areas. Our designated smoking area is in the lobby on the second floor.
- Smoking in resident rooms is not allowed.
- Never give residents smoking materials without consulting a nurse.
- Do not give residents any appliance (TV, radio, clock, phone, etc.) without consulting a nurse. All appliances must be checked to be sure they are safe.
- Extension cords are not allowed.
- When you hear the fire alarm follow the directions of the staff. Move to the nearest safe area as directed or exit the building quickly and safely. Do not attempt to move any of the residents. The staff are trained for this task.

*Remember, family  
members and guests can  
start fires too. Everyone  
must follow the smoking  
policy!*

*Look for a tag on the cord or a sticker on the appliance with a UL symbol.*

*Appliances cause 26.3% of fires in nursing facilities.*

## ► Small Appliance Hazards

**Damaged or faulty appliances can easily start a fire.**

All new resident appliances must be inspected by staff.

Do NOT permit residents to have appliances that:

- 1) Have not been approved by a recognized testing laboratory, such as Underwriter's Laboratory.
- 2) Have dents, cracks, or other visible damage on the exterior surface.
- 3) Have frayed, brittle, crushed, or cracked cords.
- 4) Spark when plugged in or when unplugged.
- 5) Do not operate properly.

Unsafe appliances must be professionally repaired or replaced.



*Check for appliances with cords that are broken, crushed, cracked, brittle, or frayed.*



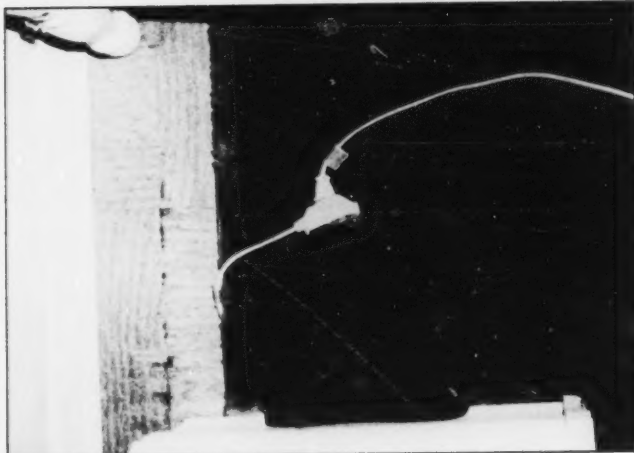
*Do not use appliances that are not approved by a recognized testing laboratory, such as Underwriter's Laboratory.*

**Conduct a routine check of appliances in residents' rooms for fire and safety hazards.**



## ► Electrical and Heating Hazards

Electrical and heating hazards together account for over 16% of nursing facility fires. Most of these hazards are easy to eliminate.



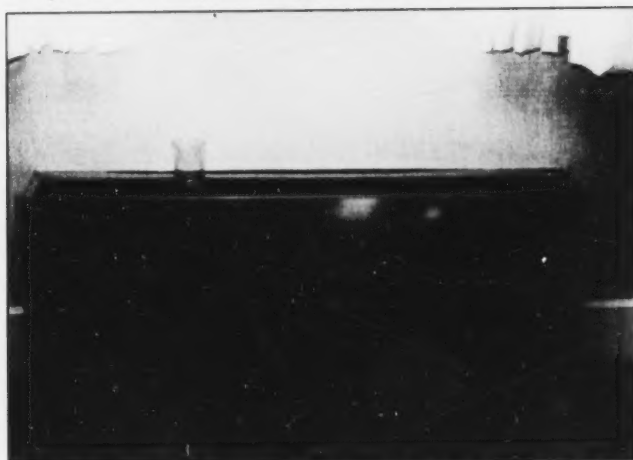
*Extension cords create many fire hazards.*

- Extension cords used as permanent wiring or outlets.
- Cords run under rugs or furniture.
- Overloaded electrical outlets.



*Lamps and other heat producing appliances can start fires.*

- Lamps, heating pads, or other heat producing appliances too close to cloth, paper, or plastics.



*Objects left on or near heaters and vents create fire hazards.*

- Objects left on or near heaters and vents such as newspapers, magazines, or plastic materials.

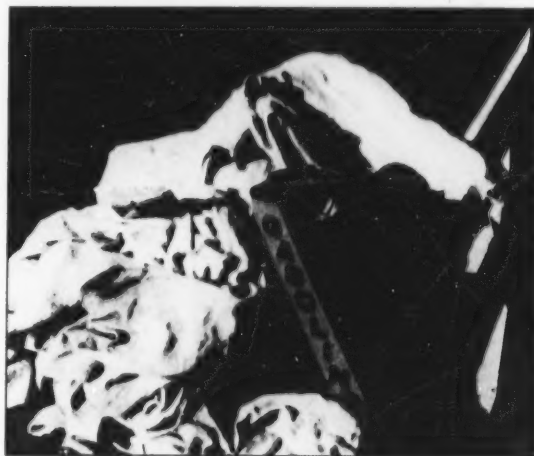
*Electrical and heating hazards are responsible for 16.6% of all fires in nursing facilities.*

## ► Closet and Storage Area Hazards

Fires can start anywhere in your facility, not just in residents' rooms. When you are walking down the hallway or getting something from a storage closet, stay on the lookout for fire hazards.

*Every shift could have a designated "fire marshal," someone who is especially alert for potential hazards.*

- Never store flammable liquids and gases, such as gasoline, cleaning supplies, and benzene, near soiled rags, linen, or other flammable material.
- Always store flammable liquids and gases in approved safety containers that are clearly labeled.
- Cleaning rags and solvents improperly stored can spontaneously combust and cause a fast growing fire.



*Store flammable liquids and rags inside metal cabinets.*



*Oxygen makes fires more intense and dangerous.*

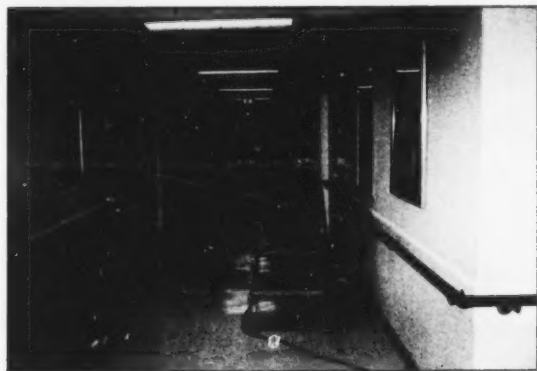


*Keeping things neat and straight helps eliminate fire hazards.*

- Always return oxygen cylinders to their designated area with valve caps in place and properly secured.
- Keep doors on storage closets closed.
- Clean up untidy storage closets, workrooms, or mechanical rooms (boiler rooms).
- Trash and litter allowed to build up in closets can help a fire grow quickly.

## ► Egress Hazards

Egress is the act of exiting a building. Egress hazards are things that can prevent or hamper your attempt to leave the building in a fire emergency. Egress hazards can be located in rooms, corridors, stairs, doorways, and outside the building.



*Keep corridors clear at all times.*



*Do not store materials in corridors or near exit doors.*



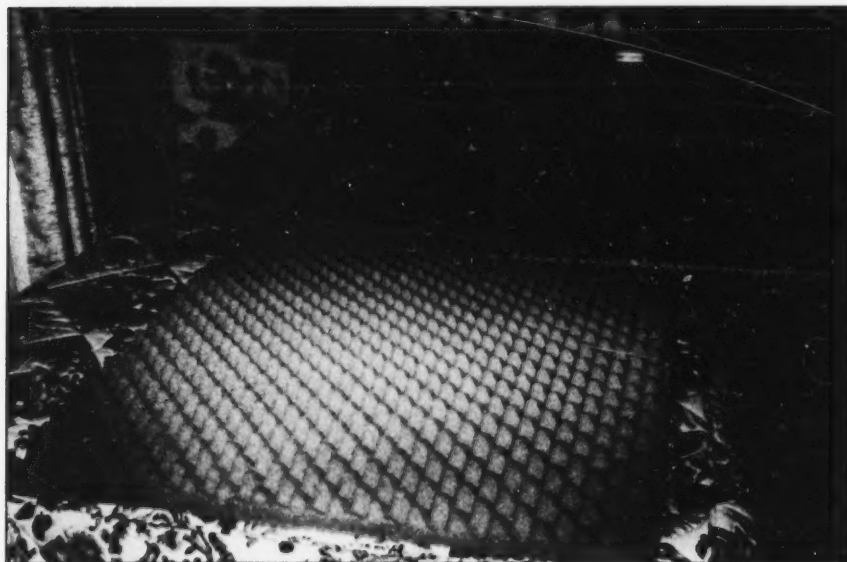
*Trash and other materials must be disposed of properly.*

- Never block doors, stairs, corridors, or paths in a room with furniture and equipment
- Dimly lit exits that are not clearly marked can prevent residents and staff from safely exiting a smoke zone.
- Be sure emergency lighting works and provides sufficient lighting.
- Fire and smoke doors that are wedged, blocked, or improperly propped open are common egress hazards.
- Be sure fire and smoke doors open easily and close tightly.
- Pathways outside exit doors that are poorly maintained or covered with ice in the winter present an egress hazard.
- Properly dispose of refuse both inside and outside the facility.

*Keeping a facility free of egress hazards is everyone's responsibility.*

**► Foam Pad Hazards**

Convoluted foam pads, commonly called eggcrates, that are placed on the top of mattresses to add extra cushioning can be a fire hazard. A smoldering cigarette left on an unsafe eggcrate can start a deadly fire.



*It is important to follow fire safety procedures when using eggcrates.*

**TIPS FOR PREVENTING FIRES INVOLVING FOAM PADDING**

- ☐ Residents who use eggcrates should not smoke while they are in bed. If residents are bedridden and insist on smoking, allow them to smoke only with staff supervision.
- ☐ If residents must have eggcrates for health reasons, be sure that the eggcrates are fire retardant. Foam pads must have a label saying that they are combustion modified to meet California Bulletin 117, which is a nationally accepted criteria for fire retardancy. Mattresses and other bedding materials must pass a fire test in order to receive this rating.
- ☐ **DO NOT LAUNDRER** eggcrates. Laundering will reduce fire retardant properties. Soiled eggcrates must be replaced.



## ► Clothes Dryer Hazards

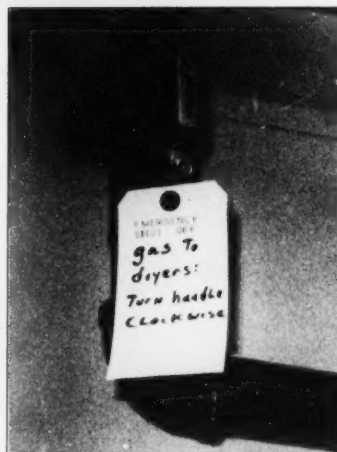
Dryers cause more than one-sixth of all fires in nursing facilities. As a dryer gets hot, the lint is heated to its ignition temperature and ignites.



Prevent fires in clothes dryers by removing the lint regularly.

### ELIMINATING FIRE HAZARDS FROM CLOTHES DRYERS

- ☐ Clean the lint filters according to the manufacturer's directions.
- ☐ Unscrew the front panel and clean the lint out of the front of the dryer at least once a month.
- ☐ If a dryer isn't working properly, have a professional service it.
- ☐ Monitor the dryers when they are running.
- ☐ Be sure the gas cutoff valve to the dryers is clearly labeled.
- ☐ Be sure all dryers vent to the outside of the building.
- ☐ Do not dry old rags or mop heads.
- ☐ Dryers should be installed, repaired, and maintained by the manufacturer or a manufacturers' representative.



Emergency gas shut off valve.

*One-sixth of all nursing home fires involve a clothes dryer.*

*Clean lint filters of large commercial dryers after every eight hours of operation.*

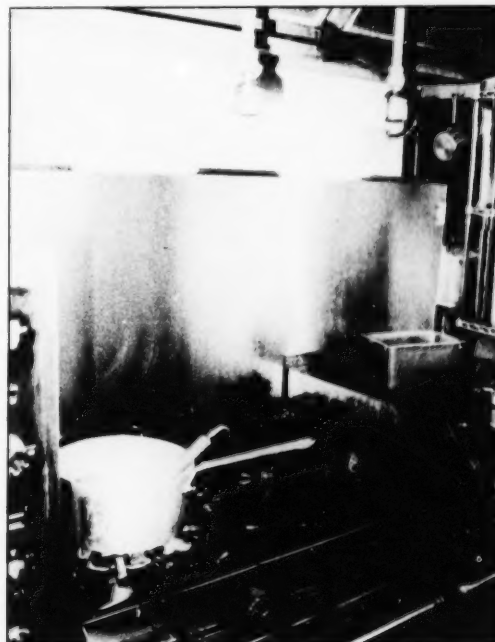
*Clean the lint filters of residential dryers after each use.*

*Everyone who works in the laundry room should be alert for fire hazards.*

## ► Cooking Equipment Hazards

Cooking is the third leading cause of fires in nursing facilities. By following safe cooking procedures, these fires can be avoided.

- Never leave cooking equipment or materials on the stove or in the oven when you are finished using them. Keep the kitchen area free of all clutter, especially items that ignite easily.



*Cooking fires occur often and start quickly.*

*Cooking fires are responsible for many fires in nursing facilities.*

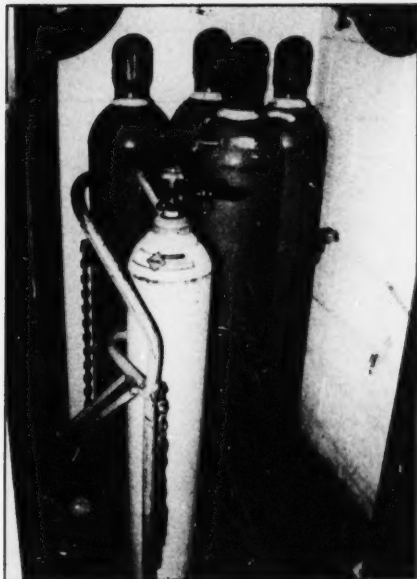
### PREVENTING FIRES IN KITCHENS

- ☐ Never leave cooking unattended.
- ☐ Use equipment specially made for deep frying.
- ☐ Clean and maintain kitchen hoods and exhaust ducts to prevent grease build up.
- ☐ Clean stoves and ovens once a week.
- ☐ Be sure stoves and ovens are turned off after use and during power failures.
- ☐ Be sure the staff members wear close fitting clothes when cooking and keep long hair tied back.
- ☐ Keep combustibles such as napkins and towels away from ovens and stoves.
- ☐ Install a range hood fire extinguishing system over stoves and fryers.
- ☐ Be sure everyone knows the location of the pull pin or lever that activates the range hood extinguishing system over the stove.

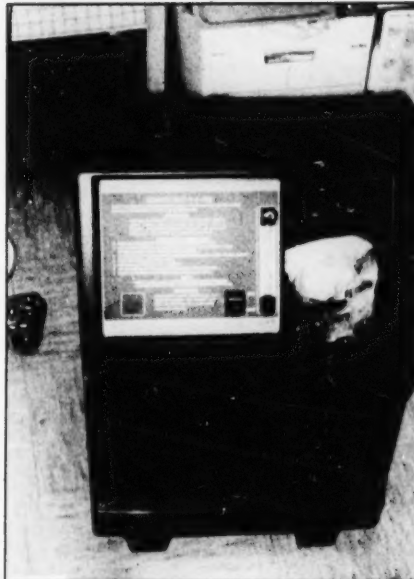


*Extinguishing system pull pin.*

## ► Pressurized Oxygen Hazards



*Do not leave oxygen cylinders in the hallways. Chain and store them in their proper storage area.*



*Use of an oxygen concentrator is safer because pressurized oxygen is not stored inside the unit.*

### ELIMINATING FIRE HAZARDS INVOLVING PRESSURIZED OXYGEN

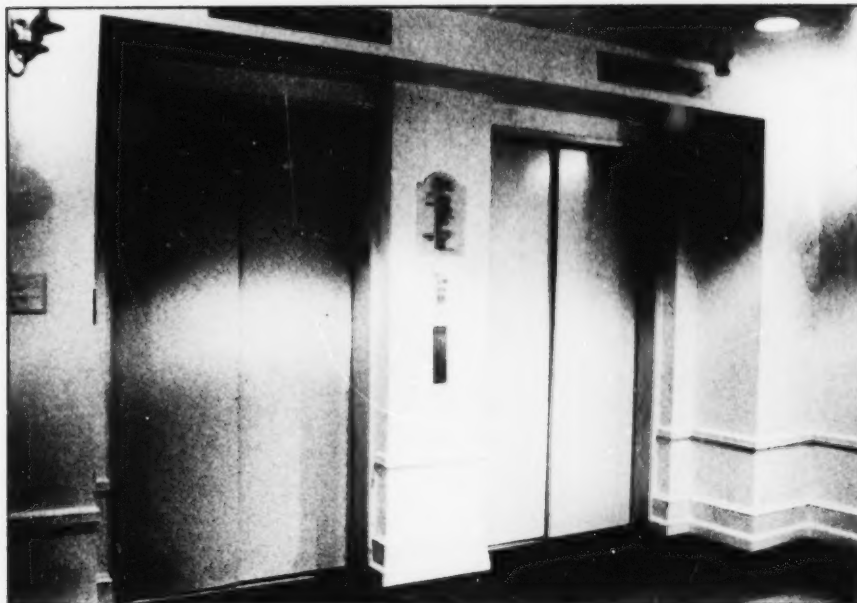
- ☐ Store oxygen cylinders in designated storage areas with valve caps in place.
- ☐ Chain oxygen tanks that are not being used.
- ☐ Do NOT allow smoking around pressurized oxygen tanks.
- ☐ Do NOT allow residents who are on oxygen to keep smoking materials in their possession.
- ☐ Periodically test the valves, hose connections, and regulators for leaks.
- ☐ Use only special "explosion-proof" fixtures and switches in areas where pressurized oxygen stored.
- ☐ Put "Oxygen in Use" signs outside of areas where oxygen tanks are being used.
- ☐ Use oxygen concentrators instead of pressurized oxygen whenever possible.
- ☐ Vent rooms where oxygen is stored.
- ☐ Turn centrally piped oxygen systems off in fire areas during fire emergencies.



*When used improperly, pressurized oxygen can cause an explosion or speed up a fire's growth. Take special precautions when working with pressurized oxygen.*

## ► Elevator Use in Fire Emergencies

Elevators are not designed to be used in a fire emergency.



*Elevators should only be used by the fire department during a fire emergency.*

### **Fire hazards created by using an elevator in a fire emergency.**

- Residents and staff may have to wait in the lobby for the elevator for some time, exposing themselves to toxic smoke and fire, and increasing stress levels.
- Elevator shafts act as chimneys in buildings. The shaft carries heat and smoke from the fire floor to other floors exposing passengers in the elevator and people waiting for the elevator to heat, smoke, and flame.
- Modern elevators will not operate until the doors are completely closed. In an emergency, a large number of people may crowd into an elevator, preventing the doors from closing.
- Automatic elevators travel to floors by responding to pressed buttons. This operation cannot be canceled once a button is pressed. An elevator can stop at the fire floor and expose occupants to heat, smoke, and flame.
- The elevator may break down, trapping people between floors.



## ► Fire Hazards Checklist

*Look for these fire hazards.*

### Smoking

- ☐ Smoking in a nondesignated area.
- ☐ Falling asleep while smoking.
- ☐ Improper disposal of ashes and lighted material.
- ☐ Leaving cigarettes unattended.
- ☐ Resting ashtrays on the arms of couches and chairs.
- ☐ Smoking near concentrated oxygen cylinders.

### Appliances

- ☐ Appliances with cords that are broken, crushed, cracked, brittle, or frayed.
- ☐ Appliances that are not approved by a recognized testing laboratory.

### Electrical, Heating Equipment

- ☐ Lamps, heating pads or other heat producing appliances too close to cloth, paper, or plastics.
- ☐ Extension cords used for permanent purposes.
- ☐ Cords run under rugs or furniture.
- ☐ Overloaded electrical outlets.
- ☐ Objects left on or near heaters and vents.

### Improper Storage

- ☐ Flammable liquids and gases, such as gasoline, cleaning supplies, and benzene, stored near soiled rags, linen, or other flammable material.
- ☐ Flammable liquids and gases not stored in approved safety containers that are clearly labeled.
- ☐ Oxygen cylinders not returned to their designated area with valve caps in place.

### Egress

- ☐ Furniture and equipment blocking doorways, stairways or halls.
- ☐ Dimly lit exits that are not clearly marked.
- ☐ Fire or smoke doors that are wedged, blocked, or improperly propped open.
- ☐ Fire or smoke doors that do not open easily or close tightly.

### Neglected Maintenance

- ☐ Cleaning supplies left in hallways or rooms.
- ☐ Refuse not disposed of properly both inside and outside the facility.
- ☐ Untidy storage closets, workrooms, or mechanical rooms (boiler rooms).

### Eggcrates

- ☐ Eggcrates that have been laundered.
- ☐ Eggcrates that do not meet the requirements of California Bulletin 117.

### Clothes Dryers

- ☐ Built up lint in clothes dryers.
- ☐ Clothes dryers that overheat or do not work properly.
- ☐ Clothes dryers that do not vent to the outside.

### Cooking

- ☐ Cooking left unattended.
- ☐ Cluttered kitchen and counter area.
- ☐ Stove and oven left on.

### Oxygen Cylinders

- ☐ Oxygen cylinders not stored in the designated area.
- ☐ Lack of "No Smoking" signs in areas where oxygen is being used.

*Be sure to correct all unsafe conditions immediately after they are discovered.*

*Use this page to conduct an inspection of your facility.*

**► Module Five Summary****Module Summary Questions**

1. *Why is it dangerous to smoke in or near areas where pressurized oxygen is in use or being stored?*
  - a. Pressurized oxygen makes cigarette smoke extremely toxic.
  - b. Pressurized oxygen is a flammable liquid.
  - c. Pressurized oxygen makes people dizzy and unbalanced.
  - d. Pressurized oxygen speeds up the combustion process.
2. *What is the leading cause of fire deaths in nursing facilities?*
  - a. Cooking.
  - b. Clothes dryers.
  - c. Smoking.
  - d. Spontaneous combustion.
3. *What type of hazard is created by furniture and equipment blocking doorways, stairways or corridors?*
  - a. Smoking hazard.
  - b. Egress hazard.
  - c. Electrical hazard.
  - d. Cooking hazard.
4. *Which of the following causes the largest number of nursing facility fires?*
  - a. Appliances.
  - b. Smoking.
  - c. Cooking.
  - d. Heating.
5. *Who must follow the smoking policy?*
  - a. Residents only.
  - b. Residents, guests, and staff.
  - c. Residents and staff.
  - d. Residents and guests.
6. *Which of the following resident possessions creates the worst fire hazards?*
  - a. Clothing.
  - b. Toiletries.
  - c. Appliances.
  - d. Books.
7. *How often should most commercial dryer lint filters be cleaned?*
  - a. Every day.
  - b. Every week.
  - c. Every other day.
  - d. Every eight hours of operation.

# Fire Safety Devices

## Module Six contains information on:

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- ▶ What is a Fire Safety Device?
- ▶ Doors and Barriers
- ▶ Emergency Lights and Exit Signs
- ▶ The Telephone as a Fire Safety Device
- ▶ Smoke Detection Systems
- ▶ Fire Alarm Systems
- ▶ Sprinkler Systems
- ▶ Facts About Sprinkler Systems
- ▶ Automatic Hood and Duct Systems
- ▶ Fire Extinguishers

## Important Points

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- ▶ Fire safety devices save lives in a fire emergency.
- ▶ Closed doors are very important fire safety devices because they slow down the spread of fire and smoke.
- ▶ List emergency numbers near every phone.
- ▶ In most nursing facilities, smoke detectors are connected to the building fire alarm system.
- ▶ A sprinkler system is the most efficient and effective means of controlling a fire.
- ▶ All fire extinguishers are not alike. You must use an extinguisher with the correct rating for the type of fire present.
- ▶ It is very difficult to put out even a small fire using a fire extinguisher. In almost all cases, it is safer to let the fire department extinguish the fire.

## MODULE SIX

## ► What is a Fire Safety Device?

A fire safety device is something that does one or more of the following:

Puts out a fire.

Slows down the spread of fire or smoke.

Detects fire or smoke.

Alerts you to fire or smoke.

Helps you escape in a fire.

Triggers the activation of other fire safety devices.

Provides information about a fire.

Prevents a fire.

Name as many fire safety devices as you can.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
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12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_



## ► Doors and Barriers

### Why are doors fire safety devices?

- Closed doors slow down the spread of smoke and fire.
- Fire doors are designed and constructed to resist the passage of fire and have self-closing devices to assure complete closure after being opened.

### Where should doors be located?

- At entrances to residents' rooms.
- At the top, bottom, and entrances to stairs.
- At all elevator shaft openings.
- At all laundry chute openings.

### What maintenance is needed?

- Periodically check to see that doors close properly. If they do not, check the floor surface, hinges, latching devices, and coordinating devices.
- Check the self-closing apparatus on the doors to be sure that the doors close completely after being opened.
- Report problems to the Safety Director or Maintenance Supervisor.

### What is a smoke barrier?

- An interior separation consisting of walls, floors, and ceilings with protected openings specially designed and constructed to resist the movement of smoke.

### How do smoke barriers work?

- They slow down the spread of smoke and vapors from one area of the building to another.
- They confine the fire and restrict the amount of oxygen available for fire growth.



*Fire and smoke barrier doors, with the exception of resident room doors, should have automatic self-closing devices on them, similar to the metal mechanism on the upper-left hand side of the door shown above.*

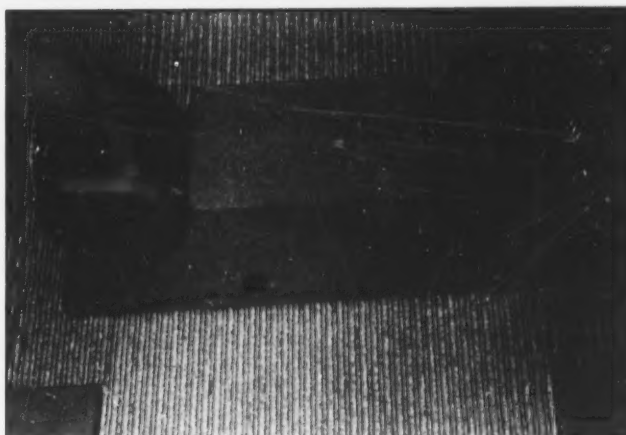
*Smoke barrier doors may be held open electronically if they are designed to close automatically when the fire alarm activates.*

*A closed door slows down the spread of smoke and deadly toxins.*

*Check all your emergency lights regularly to be sure that they are in proper working condition and the amount of light is sufficient to exit safely. Exit signs should be lighted at all times.*

*Check flashlights weekly to be sure batteries are working. Keep a supply of batteries available.*

## ► Emergency Lights and Exit Signs



*Emergency lights illuminate smoke-filled halls and stairways so that people may evacuate safely when the power fails.*

### What do emergency lights do?

- Emergency lights illuminate the corridors and exits to reduce confusion and shorten the time it takes for an emergency evacuation.
- Some facilities have battery-operated floodlights that come on when the power fails. Other facilities have emergency generators that power the facility's regular lights.

### What maintenance is needed for emergency lights?

- Test monthly to be sure that the lights are working.
- Charge or replace batteries and bulbs when necessary.

### What other kinds of lights are useful in emergency situations?

- Small emergency lights that plug into wall sockets.
- Lights that are built into smoke detectors.
- Flashlights that are kept at the nursing stations.

### What do exit signs do?

- Help people locate exit doors which are not routinely used.
- Help visitors, new staff, and firefighters locate exits.



## ► The Telephone as a Fire Safety Device

### What is a programmable telephone?

- Push-button telephones with important numbers (the fire department, the police, chief administrators) programmed in the telephone. At the touch of a button, staff can call for help.
- With a programmable telephone, staff members do not have to remember important numbers when an emergency occurs. Program emergency numbers on every phone.

### Where should the programmable telephones be located?

- Install a telephone at nursing stations and in each smoke zone. List emergency numbers near every phone.

### Who should be called first in a fire emergency?

- Always call the fire department before calling facility owners and administrators.



*A telephone can be a life-saving device in a fire emergency.*

*Firesetters have sabotaged telephone systems to cut off communication with emergency forces. At least one individually wired telephone should be available to staff in case the telephone system does not work in an emergency.*

## ► Smoke Detection Systems

*Smoke detection systems sense smoke from fire and send a signal to the nurses' station or a control panel.*

*The control panel sends signals that activate fire safety devices.*

### What are smoke detectors?

- Devices that sound an alarm when smoke is present.

### How do smoke detectors work?

- An alarm goes off when the detector senses smoke particles in the air around it.
- When smoke rises to the ceiling, it sets off the alarm.
- Cigarette smoke should not cause an alarm to sound.

### What is the advantage of smoke detectors?

- Smoke detectors save lives by detecting fires quickly and alerting staff to the fire.

### Where are the smoke detectors in your facility?

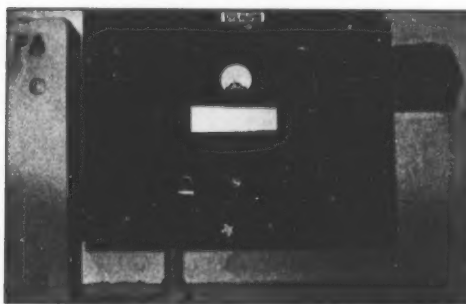
- Smoke detectors may be found in corridors, in sleeping areas, in day rooms, in elevator lobbies, and at fire and smoke barrier doors.

### What maintenance is needed for smoke detectors?

- All smoke detectors should be cleaned and tested routinely in accordance with manufacturer's recommendations and as required by local and national fire codes.
- The maintenance and testing should be performed by manufacturer representatives or professionally trained technicians.

### What are smoke detection systems?

- Smoke detection systems consist of smoke sensing devices and alarm devices connected to a control panel.
- They should be electronically supervised to provide notification of any trouble in the system, such as a broken wire.



*When a smoke detector has been activated, a control panel is needed to send a signal to the fire alarm system, which then sounds internal alarms throughout the building.*



*This facility has smoke detectors in the resident rooms.*

### How do smoke detection systems work?

- When a detector is activated, it sends a signal to a control panel, which sends a signal to activate internal alarms either at the nurses' station or throughout the building.
- The control panel can also send a signal to the fire department, to a surveillance company or to a central station service.



## ► Fire Alarm Systems



*When someone pulls a manual station, an alarm sounds throughout the building.*

### What are manual fire alarm systems?

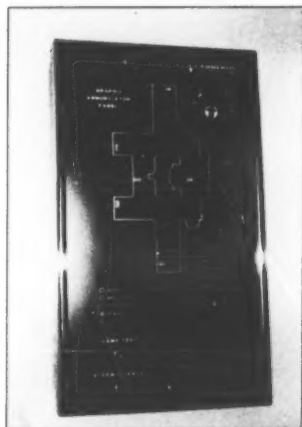
- A series of pull boxes located throughout the building which must be activated by hand. They are connected to internal alarms such as bells, horns, speakers, or chimes.
- Pull boxes are located in corridors, at nursing stations, and near exits.

### How do manual alarm systems work?

- When you discover a fire, you pull the manual device which sends a signal that sounds bells, horns, speakers, or chimes throughout the entire building.
- The manual alarm system can also be connected to the fire department or to a surveillance company, alerting them whenever an alarm is activated.

### What is an annunciator panel?

- An annunciator panel is a device that identifies the area where a fire safety device has been activated. They are usually located in the main lobby, or the nurses' station so that the fire department can see which part of the building may be on fire.
- An annunciator is often used with a P.A. system that is used to give emergency instructions.



*An annunciator panel gives information about the location of a fire.*

### How does an annunciator panel work?

- A panel with lights shows the location of smoke detector zones, sprinkler heads, and manual alarm stations.
- By looking at the annunciator panel, the fire department can determine the zone where the alarm went off.
- Graphic annunciator panels contain a scaled drawing of the actual building floor plan and make it possible to have more information about the location where a fire safety device has been activated.

### What is a surveillance company or a central station service?

- A company which monitors building fire safety systems 24 hours a day.
- When the fire alarm goes off, the monitoring company receives a signal and then notifies the fire department.
- Staff must still call the fire department, even if the facility's alarm system is connected directly to a monitoring company.

## ► Sprinkler Systems

*Always notify the fire department before a sprinkler system is shut off for maintenance, even when it will only be off for a very short time.*



*Many state legislatures have passed laws that require new and existing nursing facilities to install sprinkler systems.*

A sprinkler system is one of the most efficient and effective means of controlling a fire in a building. The National Fire Protection Association (NFPA) has no record of a multiple fire death (3 or more people killed) in a building with a functioning sprinkler system.

### What is a sprinkler system?

- A sprinkler system is a pipe network filled with water that has heads located throughout the building.

### How does a sprinkler system work?

- When the heat reaches a temperature high enough to melt the fusible link on a sprinkler head, the water is released.
- *Each sprinkler head activates independently.*

### What maintenance is needed?

- Have qualified personnel check the water pressure and inspect the heat activated elements (sprinkler heads) and pipe conditions on a regular basis—at least once every three to six months.
- It is important to inspect water supply valves regularly to be sure the system is supplied with water.

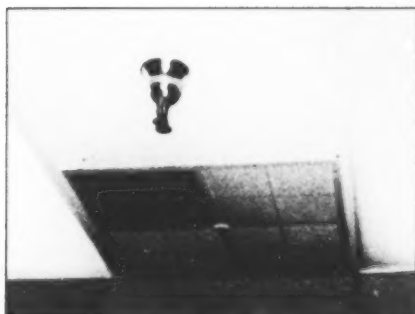
## ► Facts About Sprinkler Systems

### Sprinklers Save Lives!

- Sprinkler systems are designed to keep a fire from spreading outside the room or area where it starts.
- Properly working sprinkler systems confine a fire to the room or area where it starts.
- Professional contractors design and install sprinkler systems. The local building code authorities or the fire department check the plans and installation to be sure everything is designed correctly.
- The sprinkler system must be maintained on a regular basis by professional technicians for the sprinkler system to operate properly and be effective.
- When a sprinkler head operates, a water flow device activates the building's fire alarm system and annunciator panel.
- Sprinkler systems are connected to a water supply capable of providing enough water and pressure to control the fire. This could be the city water main or a pressurized water holding tank.



*Plans are checked by professionals before sprinkler system installation.*



*Never paint a sprinkler head.*

- Quick response sprinkler heads have a fast acting heat responsive element. During a fire, they release water sooner than ordinary sprinkler heads.
- Sprinkler heads may be recessed and concealed with cover plates.
- Sprinkler heads and cover plates must not be painted or damaged by accidentally hitting them. Painted or damaged heads must be replaced immediately.

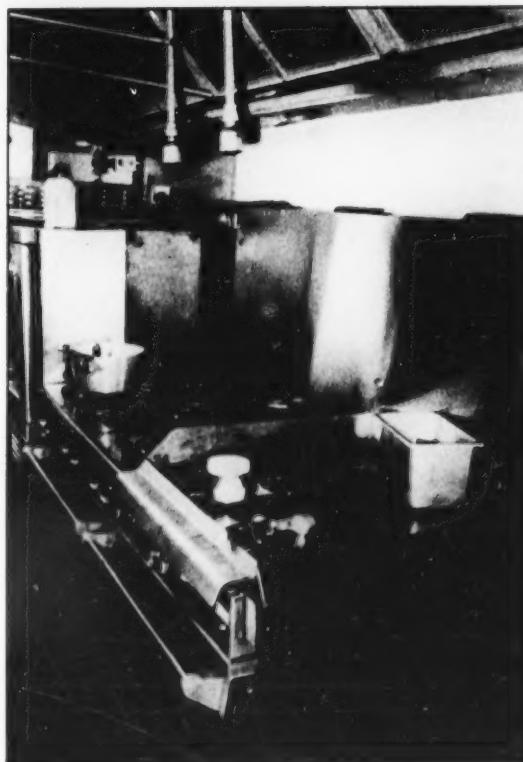
*Instructions for manual operation of the extinguishing system must be posted in a visible location.*

*The chemicals in an ABC fire extinguisher may be incompatible with the chemicals in an automatic hood and duct system. The BC type extinguisher should be used in kitchen areas.*

## ► Automatic Hood and Duct Systems

**What are the main components of an automatic hood and duct system?**

- **Hood:** Captures grease-laden vapors and exhaust gases and is located over the cooking equipment.
- **Grease removal device:** Removes grease particles from the exhaust air.
- **Exhaust ducts:** Passageway for transmission of exhaust gases to the exterior of the building.
- **Air moving device:** Exhaust fans and motors to pull fumes through the exhaust ducts. They must be in operation during the entire cooking procedure.
- **Fire extinguishing equipment:** Automatic system specifically designed for commercial kitchen use. They are designed to automatically activate when the fire detection system inside the hood or duct goes off. They must also have a manual release so that staff can activate the system.



*Note the extinguishing system at the top of the picture.*

**How do you maintain automatic hood and duct systems?**

- Fusible links and automatic sprinkler heads must be replaced at least annually.
- Clean the system frequently to prevent heavy build-up of grease.
- Follow the correct cleaning procedure as specified by manufacturer's instructions.
- Follow the local codes and ordinances for cleaning and maintaining.



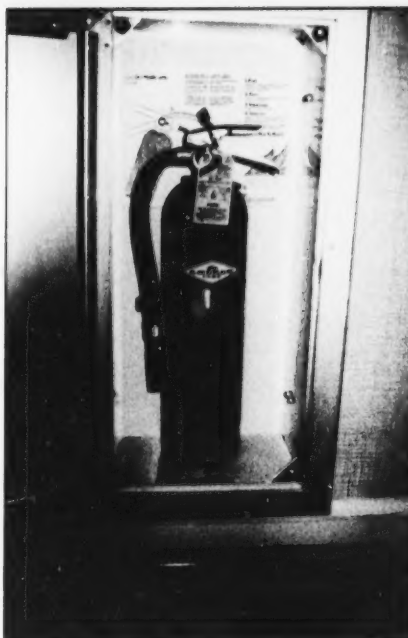
## ► Fire Extinguishers

### What is a fire extinguisher?

A fire extinguisher is a portable device containing water or chemicals that can be sprayed on a fire to put it out.

### What are the different kinds of fire extinguishers?

- Type A:** Use for ordinary combustibles (wood, cloth, paper, rubber, plastics).
- Type B:** Use for flammable liquids (gasoline, oil, grease, tar, oil-based paint, lacquer, and flammable gas).
- Type C:** Use for electrical equipment (wiring, fuse boxes, circuit breakers, machinery, appliances).
- Type D:** Use for combustible metals (Not found in nursing facilities).



Multi-use Type ABC fire extinguishers are used in nursing facilities.

### All fire extinguishers are not alike.

- Type A extinguishers can spread a flammable liquids fire. The splattered liquid and flames can cause clothing fires and burn injuries.
- Multi-use Type ABC extinguishers can be used on most nursing facility fires.
- Type BC extinguishers should be used in the kitchen.

These symbols are on extinguishers to tell you what types of fire they can put out.



### How does a fire extinguisher work?

You need hands on training to learn to use a fire extinguisher. You should not attempt to use an extinguisher unless you have professional training on a regular basis.

1. Pull the pin (many extinguishers require releasing a lock latch or pressing a puncture lever).
2. Aim low, pointing the extinguisher nozzle at the base of the fire.
3. Squeeze the handle to release the extinguishing agent.
4. Sweep the extinguisher from side to side at the base of the fire.

Fire extinguishers can only be used on very small fires.

**► Module Six Summary****Module Summary Questions**

1. *Which fire safety device slows down the spread of fire and smoke?*
  - a. Fan.
  - b. Emergency light.
  - c. Door
  - d. Manual pull box.
2. *Which of the following is NOT a fire safety device?*
  - a. Answering machine.
  - b. Emergency light.
  - c. Exits sign.
  - d. Telephone.
3. *A pull box is part of what type of emergency fire system?*
  - a. Smoke detection system.
  - b. Manual alarm system.
  - c. Sprinkler system.
  - d. Emergency lighting system.
4. *What is the most efficient and effective means of controlling a fire?*
  - a. Smoke detection systems.
  - b. Doors.
  - c. Fire extinguishers.
  - d. Sprinkler systems.
5. *When a sprinkler system activates each sprinkler head activates:*
  - a. Simultaneously.
  - b. Independently.
  - c. Manually.
  - d. Dependently.
6. *On what type of fire would you use a Type A fire extinguisher?*
  - a. Electrical fire.
  - b. Ordinary combustible fire.
  - c. Combustible metal fire.
  - d. Flammable liquids fire.

## Important Points

- ▶ Staff are responsible for the safety of residents in a nursing facility.
- ▶ Fires grow much faster than people think.
- ▶ Understanding human behavior is an important part of fire safety planning.
- ▶ Planning is the key to preventing death and injury in a fire emergency.
- ▶ The danger of fire is always present.
- ▶ Fire safety devices save lives in a fire emergency.
- ▶ Understanding fire, how to prevent it, and what to do in an emergency is the goal of all fire safety training.

## COURSE SUMMARY

## ► **National Fire Safety Certification System**

The long range goal of the National Fire Safety Certification System for the Elderly is to provide uniform, validated fire safety training which will reduce fire death and injury for special populations including people with developmental disabilities, mental illnesses, and the elderly in three major settings:

- Board and Care Homes,
- Nursing Facilities,
- Private residences.

Funding for the development of the System came from the National Institute on Aging, through Small Business Innovation Research Grants awarded on September 1, 1990 (Phase I) and February 1, 1992 (Phase II).

A Focus Group made up of experts in the fields of fire safety, developmental disabilities, the elderly, nursing facilities, training, and instructional development have guided the project throughout its development and implementation stages.

The System consists of four components:

- Workshops for board and care staff, for nursing facility staff, and for retired adults,
- Instructor training,
- A continuing education program, and
- A System network.

All Workshops provide a comprehensive fire safety education covering topics such as fire behavior, fire hazards, fire safety devices, and emergency planning. Participants receive a certificate of attendance and the opportunity to participate in the Continuing Education Program.

Instructor Training qualifies individuals to present the workshops for staff of board and care homes or nursing facilities. Instructor materials include an Instructor Manual and a videotape of a workshop. No special training is needed to present the program for retired adults.

The Continuing Education Program provides a means of offering follow-up fire safety training and information to both staff and retired adults. A quarterly newsletter and supplemental training materials are available.

The Network links certified instructors and board and care and nursing facility staff throughout the United States and provides a means for evaluating the long-term effectiveness of the System.

Results of the pilot test of the program were published in *Fire Technology*, May 1992, Volume 28, Number 2.



**BWA**